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THE

LONDON ENCYCLOPÆDIA.

VOL. V.

CAFFRARIA to CLEPSYDRA.

THE

LONDON ENCYCLOPÆDIA,

OR

UNIVERSAL DICTIONARY

OF

SCIENCE, ART, LITERATURE, AND PRACTICAL MECHANICS,

COMPRISING A

POPULAR VIEW OF THE PRESENT STATE OF KNOWLEDGE.

ILLUSTRATED BY

NUMEROUS ENGRAVINGS, A GENERAL ATLAS,
AND APPROPRIATE DIAGRAMS.

> Sic oportet ad librum, præsertim miscellanei generis, legendum accedere lectorem, ut solet ad convivium conviva civilis. Convivator annititur omnibus satisfacere; et tamen si quid apponitur, quod hujus aut illius palato non respondeat, et hic et ille urbane dissimulent, et alia fercula probent, ne quid contristent convivatorem.
>
> *Erasmus.*
>
> A reader should sit down to a book, especially of the miscellaneous kind, as a well-behaved visitor does to a banquet. The master of the feast exerts himself to satisfy his guests; but if, after all his care and pains, something should appear on the table that does not suit this or that person's taste, they politely pass it over without notice, and commend other dishes, that they may not distress a kind host.
>
> *Translation.*

BY THE ORIGINAL EDITOR OF THE ENCYCLOPÆDIA METROPOLITANA,
ASSISTED BY EMINENT PROFESSIONAL AND OTHER GENTLEMEN.

IN TWENTY-TWO VOLUMES.

VOL. V.

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THE
LONDON ENCYCLOPÆDIA.

CÆRULESCENS, in entomology, a small species of cancer, abundant in the seas between the tropics. Also, a black species of cryptocephalus; with the striated elytræ cærulescens. Found in Barbary. Also, a species of cerambyx, inhabiting Germany. Also, a species of chrysomela, of a greenish blue color.

Cærulescens, in ornithology, a species of anas. This kind inhabits North America; the color is fuscous, beneath white; wing-coverts and posterior part of the back bluish. This is the anser sylvestris freti Hudsonis of Brisson; the blue-winged goose of Latham; l'oie des Esquimaux of Buffon. Also, a species of rallus; the blue-necked rail of Latham. A Cape of Good Hope bird.

CÆRULEUS, in entomology, a species of cimex, entirely blue, without any spots. Also, the name of a species of carabus, rhinomacer, cucajus, scarabæus, and cryptocephalus. All European insects, except the last, which is found in the tropics of Africa.

Cæruleus, in ornithology, a species of cuculus; the blue Madagascar cuckoo of Latham; and le taitson of Buffon. Also the name of a species of oriolus; the blue oriole of Latham; the Xanthornus cæruleus of Brisson; and the blue jay of Ray. Also a species of Ramphastos; the blue toucan of Latham. Found in South America.

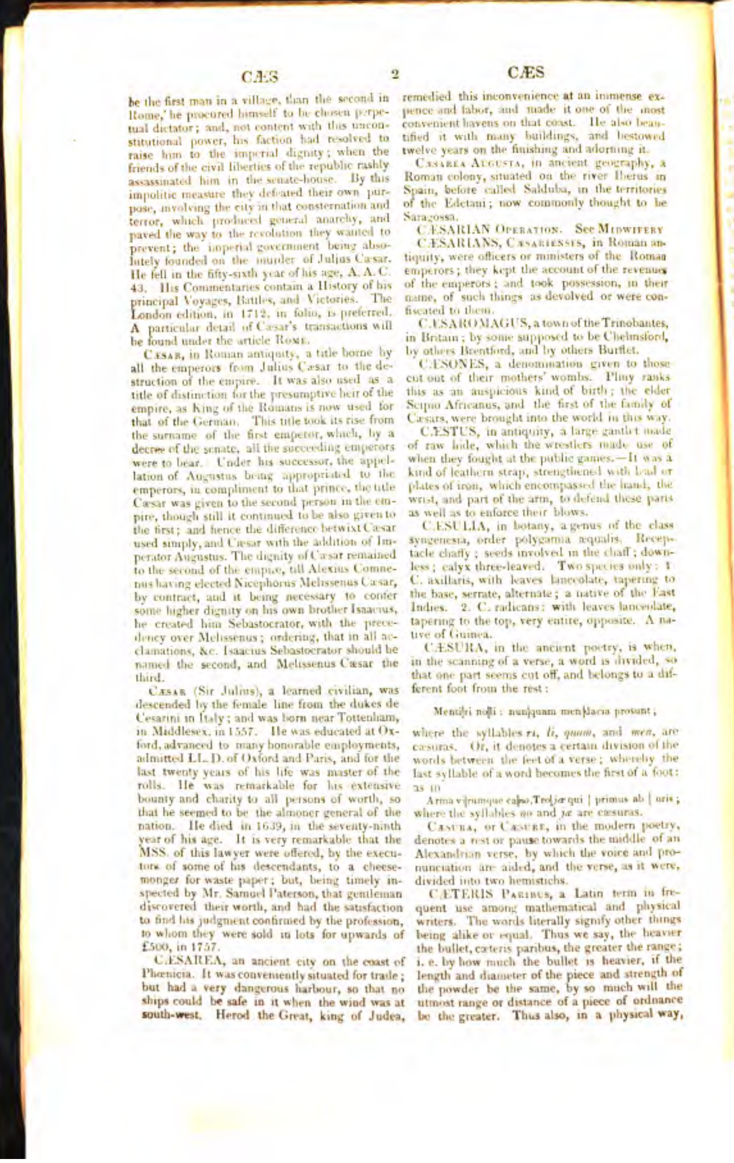
Cæruleus, in zoology, a species of coluber, the scales of which are white on one side and beneath.

CAERWYS, a parish and market town of Flint, five miles S.S.E. from St. Asaph, and 204 north-west from London. The word Caer signifies a city, and Gwys, a summons, the county assizes having been regularly held here, though now removed to Mould. In the middle of the town are four streets, in the centre stands a fine elm tree. At this place it was customary, in ancient times, for the princes of Wales to give a silver harp annually to the best bard or musician; but this custom has been discontinued ever since the reign of queen Elizabeth. The market on Tuesday is the best in the county.

CÆSALPINIA, Brasiletto, or Brasilwood, a genus of the monogynia order, and decandria class of plants; natural order thirty-third, lomentaceæ: cal. quinquefid, with the lowest segment larger in proportion. There are five petals, the lowest most beautiful It is a leguminous plant. There are nine species, the most remarkable of which are, C. Brasiliensis, commonly called brasiletto. It grows naturally in the warmest parts of America, from whence the wood is imported for the dyers who use it much. The demand has been so great, that none of the large trees are left in any of the British plantations; the largest remaining being not above two inches in thickness, and eight or nine feet in height. The branches are slender and full of small prickles; the leaves are pinnated; the lobes growing opposite to one another, broad at their ends, with one notch. The flowers are white, papilionaceous, with many stamina and yellow apices, growing in a pyramidal spike, at the end of a long slender stalk: the pods enclose several small round seeds. The color produced from this wood is greatly improved by solution of tin in aqua regia. 2. C. mimosa or mimosordes. Prickly leaflets, oblong, obtuse: stamens shorter than the corals, legumes woolly. A sensitive plant like the mimosa tribe, and a native of the East Indies.

CÆSALPINUS (Andrew), an eminent philosopher, physician, and botanist, was born at Arezzo. After having been many years professor at Pisa, he became physician to Pope Clement VIII. He was the author of Questiones Peripateticæ, a work, defending the philosophy of Aristotle against the doctrines of Galen, from which he appears to have approached very near to the theory of the circulation of the blood; having explained the use of the valves of the heart, and pointed out the course which these compelled the blood to take on both sides during the contraction and dilatation of that organ. He wrote also a botanical work De Plantis, and is justly esteemed the founder of Systematic Botany. His Hortus Siccus, consisting of 786 dried specimens of plants, pasted on 266 folio pages, was extant in 1740. He died at Rome in 1603.

CÆSAR (Caius Julius), the illustrious Roman general and historian, was of the family of the Julii, who pretended to be descended from Venus by Æneas. See Julius Cæsar. He was born at Rome on the 12th of the month Quintilis (afterwards from him called July) A. U. C. 653, and lost his father in 669. Being nephew to Marius, he was early proscribed by Sylla; who was with much entreaty prevailed on to save his life: but said to his friends when he consented, that 'he saw in that young man many Mariuses.' Cæsar, by his valor and eloquence, soon acquired the highest reputation in the field and in the senate. Beloved and respected by his fellow-citizens, he enjoyed successively every magisterial and military honor the republic could bestow, consistent with its free constitution. But at length having subdued Pompey, the great rival of his growing power, his boundless ambition effaced the glory of his former actions: for, pursuing his favorite maxim, 'that he had rather



be the first man in a village, than the second in Rome,' he procured himself to be chosen perpetual dictator; and, not content with this unconstitutional power, his faction had resolved to raise him to the imperial dignity; when the friends of the civil liberties of the republic rashly assassinated him in the senate-house. By this impolitic measure they defeated their own purpose, involving the city in that consternation and terror, which produced general anarchy, and paved the way to the revolution they wanted to prevent; the imperial government being absolutely founded on the murder of Julius Cæsar. He fell in the fifty-sixth year of his age, A. A. C. 43. His Commentaries contain a History of his principal Voyages, Battles, and Victories. The London edition, in 1712, in folio, is preferred. A particular detail of Cæsar's transactions will be found under the article Rome.

Cæsar, in Roman antiquity, a title borne by all the emperors from Julius Cæsar to the destruction of the empire. It was also used as a title of distinction for the presumptive heir of the empire, as King of the Romans is now used for that of the German. This title took its rise from the surname of the first emperor, which, by a decree of the senate, all the succeeding emperors were to bear. Under his successor, the appellation of Augustus being appropriated to the emperors, in compliment to that prince, the title Cæsar was given to the second person in the empire, though still it continued to be also given to the first; and hence the difference betwixt Cæsar used simply, and Cæsar with the addition of Imperator Augustus. The dignity of Cæsar remained to the second of the empire, till Alexius Comnenus having elected Nicephorus Melissenus Cæsar, by contract, and it being necessary to confer some higher dignity on his own brother Isaacius, he created him Sebastocrator, with the precedency over Melissenus; ordering, that in all acclamations, &c. Isaacius Sebastocrator should be named the second, and Melissenus Cæsar the third.

Cæsar (Sir Julius), a learned civilian, was descended by the female line from the dukes de Cesarini in Italy; and was born near Tottenham, in Middlesex, in 1557. He was educated at Oxford, advanced to many honorable employments, admitted LL. D. of Oxford and Paris, and for the last twenty years of his life was master of the rolls. He was remarkable for his extensive bounty and charity to all persons of worth, so that he seemed to be the almoner general of the nation. He died in 1639, in the seventy-ninth year of his age. It is very remarkable that the MSS. of this lawyer were offered, by the executors of some of his descendants, to a cheesemonger for waste paper; but, being timely inspected by Mr. Samuel Paterson, that gentleman discovered their worth, and had the satisfaction to find his judgment confirmed by the profession, to whom they were sold in lots for upwards of £500, in 1757.

CÆSAREA, an ancient city on the coast of Phœnicia. It was conveniently situated for trade; but had a very dangerous harbour, so that no ships could be safe in it when the wind was at south-west. Herod the Great, king of Judea, remedied this inconvenience at an immense expence and labor, and made it one of the most convenient havens on that coast. He also beautified it with many buildings, and bestowed twelve years on the finishing and adorning it.

Cæsarea Augusta, in ancient geography, a Roman colony, situated on the river Iberus in Spain, before called Salduba, in the territories of the Edetani; now commonly thought to be Saragossa.

CÆSARIAN Operation. See Midwifery

CÆSARIANS, Cæsarienses, in Roman antiquity, were officers or ministers of the Roman emperors; they kept the account of the revenues of the emperors; and took possession, in their name, of such things as devolved or were confiscated to them.

CÆSAROMAGUS, a town of the Trinobantes, in Britain; by some supposed to be Chelmsford, by others Brentford, and by others Burflet.

CÆSONES, a denomination given to those cut out of their mothers' wombs. Pliny ranks this as an auspicious kind of birth; the elder Scipio Africanus, and the first of the family of Cæsars, were brought into the world in this way.

CÆSTUS, in antiquity, a large gantlet made of raw hide, which the wrestlers made use of when they fought at the public games.—It was a kind of leathern strap, strengthened with lead or plates of iron, which encompassed the hand, the wrist, and part of the arm, to defend these parts as well as to enforce their blows.

CÆSULIA, in botany, a genus of the class syngenesia, order polygamia æqualis. Receptacle chaffy; seeds involved in the chaff; downless; calyx three-leaved. Two species only: 1 C. axillaris, with leaves lanceolate, tapering to the base, serrate, alternate; a native of the East Indies. 2. C. radicans: with leaves lanceolate, tapering to the top, very entire, opposite. A native of Guinea.

CÆSURA, in the ancient poetry, is when, in the scanning of a verse, a word is divided, so that one part seems cut off, and belongs to a different foot from the rest:

Menti|ri no|li : nun|quam men|dacia prosunt ;

where the syllables *ri*, *li*, *quam*, and *men*, are cæsuras. Or, it denotes a certain division of the words between the feet of a verse; whereby the last syllable of a word becomes the first of a foot: as in

Arma vi|rumque ca|no, Tro|jæ qui | primus ab | oris ;

where the syllables *no* and *jæ* are cæsuras.

Cæsura, or Cæsure, in the modern poetry, denotes a rest or pause towards the middle of an Alexandrian verse, by which the voice and pronunciation are aided, and the verse, as it were, divided into two hemistichs.

CÆTERIS Paribus, a Latin term in frequent use among mathematical and physical writers. The words literally signify other things being alike or equal. Thus we say, the heavier the bullet, cæteris paribus, the greater the range; i. e. by how much the bullet is heavier, if the length and diameter of the piece and strength of the powder be the same, by so much will the utmost range or distance of a piece of ordnance be the greater. Thus also, in a physical way,

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ri no|stri : nun|quam men|dacia prosunt;

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we say, the velocity and quantity circulating in a given time through any section of an artery, will, cæteris paribus, be according to its diameter, and nearness to or distance from the heart.

CÆTOBRIX, in ancient geography, a town of Lusitania, near the mouth of the Tagus, on the east side; now extinct. It had its name from its fishery; and there still exist fish-ponds on the shore, made with plaster of Paris, which illustrate the name of the ruined city.

CÆYX, in mythology, a king of Thrace, who was metamorphosed into a halcyon.

CAFER, in entomology, an African species of cimex: color black, with a white band on the thorax; ferruginous wing-cases, with four white spots. Also a species of green scarabæus, with the margin of the thorax and elytræ spotted with white. Inhabiting the Cape of Good Hope.

CAFER, in ornithology, a species of merops, with gray plumage and a yellow spot near the anus, tail long. Native of Ethiopia. Also, a species of picus, brown above, beneath light green, dotted with black, the under part of the wings and tail vermilion colored. Found at the Cape of Good Hope.

CAFFA, or KAFFA, a city and port town of Russia in Europe, situated on the south-east part of Crim Tartary. It is the most considerable town in the country, and gives name to the straits mentioned below. It was anciently called Theodosia; a name which has been restored since the Russians have obtained this country. It is 150 miles north-east of Constantinople.

CAFFA, STRAITS OF, run from the Euxine or Black Sea, to the Palus Meotus, or Sea of Azoph.

CAFFACA, in natural history, a name given by the Turks and Tartars to a peculiar kind of earth, of a gray color, having a light cast of green in it. It is very soft and unctuous, and resembles our fullers' earth; but is more astringent, and adheres very firmly to the tongue; these people use this earth when they bathe.

CAFFEIN, the base of coffee. By adding muriate of tin to an infusion of unroasted coffee, M. Chenevix obtained a precipitate, which he washed and decomposed by sulphuretted hydrogen. The supernatant liquid contained a peculiar bitter principle, which occasioned a green precipitate in concentrated solutions of iron. When the liquor was evaporated to dryness, it was yellow and transparent like horn. It did not attract moisture from the air, but was soluble in water and alcohol. The solution had a pleasant bitter taste, and assumed with alkalies a garnet-red color. It is as delicate a test of iron as infusion of galls; yet gelatine occasions no precipitate with it.

CAFFER, Bos. See Bos.

CAFFER, in entomology, a Cape of Good Hope species of cerambyx; color brassy green, thorax spinous, wing-cases testaceous, and short antennæ.

CAFFILA, a company of merchants or travellers who join together, in order to go with more security through the dominions of the Grand Mogul, and other countries on the continent of the East Indies. The caffila differs from a caravan, at least in Persia; for the caffila belongs properly to some sovereign or some powerful company in Europe, whereas a caravan is a company of particular merchants, each trading upon his own account.

CAFFRA, in entomology, a species of apis, hirsute and black, with the posterior part of the thorax and anterior part of the abdomen yellow.

CAFFRA, in ornithology, a species of certhia; color fuscous, the breast and abdomen pale, and the middle feathers of the tail longest. This bird and the Caffra apis are both natives of Caffraria, whence their name.

CAFFRARIA, a country of Africa, extending across the southern part of the continent, and contained on the west between the twentieth and twenty-fifth degree of south latitude, and between the twenty-fourth and thirty-second degree of south latitude on the east. Some geographers have applied this name to the whole country lying south of Cape Negro and the River Del Spiritu Santo, and reaching toward the north, between Lower Guinea and Monomatapa, as high as the equator. But the appellation should be confined to that portion of country inhabited by the Caffres, from whom it takes its name; a people with whom we are closely connected by our colonial possessions at the Cape, and differing widely in appearance, disposition, and manners, both from the negroes as well as the Hottentots of this continent.

Of their country our knowledge is as yet defective, though it has been lately increased by the travels of Mr. Campbell and others. The Boos huanas, Barroloos, Damaras, Tambookies, and the inhabitants of Cafferland, who are particularly distinguished by the colonists of the Cape of Good Hope, by the name of Caffres, are the principal tribes of which we have any account: and it is to the latter of these that the descriptions of Paterson, Sparmann, Vaillant, and Barrow, refer.

Towards the east, this country is in many places extremely fertile. The mountains are covered with forests, and the plains with luxuriant herbage, refreshed and fertilised by innumerable streams. But towards the west it is a perfect desert. The inhabitants keep no cattle, and their whole subsistence depends upon the exchanging of copper rings and beads with the Booshuanas on the east, and the Namaqua Hottentots on the south. These rings they manufacture from copper ore, found in great abundance, in a chain of mountains extending from the Orange River to the tropic. On the banks of the Great Fish River, which is the boundary between the Cape colony and Cafferland, Mr. Barrow experienced a very remarkable variation in the temperature of the air, during the space of two days, and the climate generally is very variable, but they have little rain, except in summer, when it is accompanied by thunder and lightning.

Mr. Campbell has principally illustrated the towns of the interior, which we treat in their alphabetical places, and particularly Lekatoo, which was also visited in 1801 by commissioners from the Cape colonial government. See AFRICA.

The history and habits of the Caffres have become additionally interesting to this country since the tide of emigration has been directed eastward of our Cape colony, and their character has become, to numerous British settlers, that of the most important plunderers upon earth.

These tribes are supposed to be of Arabic origin. They call themselves Kaussis. Like the Hottentots, they are a singularly insulated race. We are persuaded from a diligent comparison of the best accounts, that, also, like the Hottentots, they are a greatly injured people, and have been goaded, by the bad usage of many generations, to the outrages they are still found to commit. The practice of the rite of circumcision alone seems to connect them with the history of the world. This they perform, like the Mahommedans, in the twelfth or thirteenth year, but connect with it no religious ceremony or notion, except that of respect to their ancestors. If they have any sort of religion besides, it is unaccompanied with any public rites. Their language is soft and harmonious, and differs much from that of the Hottentots, although the names of their mountains and rivers are evidently of Hottentot origin.

The dwellings of these people resemble beehives, constructed on a wooden frame, and plastered both within and without with a composition of clay and the dung of cattle. They are then neatly covered with a kind of matting.

Every Caffer bears arms, not as a profession, but as the exigence of his affairs seem to demand it. They are all both shepherds and warriors, as have been the greatest and the best of mankind; they evidently prefer the former mode of life, and there seems no just foundation for attributing to them a cruel or sanguinary disposition; their moderation towards the colonists, in a variety of instances, directly indicates the contrary. And of treachery they have not a shade in their character. 'Le Caffre,' says M. Vaillant, 'cherche toujours son ennemi face a face; il ne peut lancer sa bassagai, qu'il ne soit a decouvert; le Hottentot, au contraire, caché sous une roche, ou derriere un buisson, envoie la mort, sans s'exposer a la recevoir; l'un est le tigre perfide qui fond traitreusement sur la proie; l'autre est le lion genereux qui s'annonce, se montre, attaque, et perit, s'il n'est pas vainquer.' His principal weapons are the hassagai, or omkontoo, as he calls it, a sort of spear with an iron head of a foot long, fixed to a tapering shaft of about four feet in length; and the keerie. The former he throws with wonderful dexterity, seldom failing of his mark, at the distance of fifty or sixty paces. The keerie is used either in a close engagement or at a distance. It is a club of about two feet and a half long, and at one end nearly three inches in diameter. To these we may add a shield of an oval shape, made of the thickest part of a bullock's hide, which he carries to defend himself against the darts and arrows of his enemy. Unlike his neighbours, the Hottentots and Bosjesmans, he does not use poison on his weapons, and rarely attacks by surprise.

The Caffres are more attached to a pastoral than an agricultural life; though their soil, as far as it is known, and particularly to the east, offers great facilities for cultivation, and is so extremely fertile, that, with a very little labor, it might be made to produce the finest grain and fruits of the colony. So extremely negligent are they of these advantages, that a large species of water melon and millet are their principal culinary plants. They likewise cultivate some tobacco and hemp, both of which they use for smoking. They rarely kill any of the cattle for food, except to show hospitality to a stranger. Milk is their ordinary diet, which they always use in a curdled state; berries of various descriptions, and the seeds of plants, which the natives call plantains, are also eaten, and a few of the gramineous roots with which the woods and the banks of the rivers abound. Occasionally too, the palm-bread of the Bosjesmans is found amongst them. Their total ignorance of the use of ardent spirits, and fermented liquors, and their general temperance and activity, preserve them from the ravages of many disorders which abound amongst the other native tribes, to say nothing of the value of their independence. Their wealth consisting solely of their cattle they devote the principal part of their time to the management of them, which is conducted with great regularity; and even the affairs of the dairy are superintended wholly by the men. By a sharp whistling sound, made either artificially with a piece of bone or ivory, or by means of the hand applied to the mouth (as our English boys frequently make it), they contrive to inure their cattle to a sort of mechanical training. One signal of this kind disperses them in the morning to their pastures, another separates the cows from the herd to be milked, and a third collects them all for marching. Among their oxen many resemble the black cattle of the Highlands, others are as remarkable for their size, and are not unlike the Alderney cow. Some are used for riding, as they have no horses among them, and the horns of these they twist into a variety of fantastic shapes. The constructing their habitations, the breaking up of the ground and preparing it for the seed, and the gathering in of their harvest, fall to the lot of the women; who also manufacture a coarse earthenware for boiling their food, and very neat reed baskets, which serve as milk pails. The commerce of this people is divided between the Dutch farmers and their eastern neighbours, the Tambookies. To the former they bring their cattle in exchange for small pieces of copper and iron, glass beads, and other trifles; from the Tambookie nation they procure their wives.

Previous courtship is not considered necessary to marriage. When a man once selects the object of his wishes, nothing remains but to strike a bargain with the father; the amount of which is generally an ox or a couple of cows; and the damsel resigns herself to her fate, without emotion or surprise. The Tambookie wives, however, are thought rather a dear commodity; they are rarely obtained but by the chiefs; and, among the common people, this custom of purchasing wives renders polygamy, though allowable, not frequent, as they can seldom afford the price of more than one. Their marriages are celebrated with feasts and dancing, which not unfrequently last for weeks together. 'A Caffre woman,' Mr. Barrow says, 'is only serious when she dances; and at such times her eyes are constantly fixed on the ground, and her whole body seems to be thrown into convulsive motions.'

The government of the Caffres is monarchical, but administered by various subordinate chiefs, who are distinguished from the people at large by a brass chain suspended on the left side of the head, from a wreath of copper beads. The regal honor descends from father to son; in default of the latter to a nephew; and, in default of both, it becomes elective, an occasion, when it occurs, of considerable strife. Their rulers seem to have no control, however, over the lives or properties of those they govern. Their laws, apparently suggested by natural principles, are very few and simple. If the death of a fellow creature be the effect of accident, a fine is paid to the relatives of the deceased, but premeditated murder is visited with instant death. Of imprisonment for any crime they have no conception; restitution is the punishment inflicted for theft; and the same laws, in cases of their delinquency, are applied equally to the chiefs and to their subjects.

Mr. Barrow, in the course of his first expedition into Caffre-land, penetrated to the capital, which is not far east of the Fish River, and conducted a negociation with their king Gaika, of which he gives a very interesting account. Having waited for some time in conversation with the mother of this chief, about thirty-five, and his queen, a very pretty girl of fifteen, the king made his appearance on an ox in full gallop, attended by five or six of his people. Business commenced, with little ceremony, under the shade of a mimosa. Anticipating, with great promptitude and ease of manner, the general object of the visit, he began by observing, that none of the Caffres who had passed the frontier were to be considered as his subjects. 'He said they were chiefs as well as himself, and entirely independent of him; but that his ancestors had always held the first rank in the country, and their supremacy had been acknowledged by the colonists on all occasions; that all those Caffres and their chiefs who had a long time been desirous to enter under the protection of his family had been kindly received, and that those who chose rather to remain independent had been permitted to do so without being considered in the light of enemies.' He then entered as freely into the history of his family. 'He informed us,' continues Mr. B. 'that his father died and left him when very young, under the guardianship of Zembei, one of his first chiefs, and his own brother, who had acted as regent during his minority; but that having refused to resign to him his rights, on coming at years of discretion, his father's friends had showed themselves in his favor, and by their assistance he had obliged his uncle to fly; that this man had then joined Khootar, a powerful chief to the northward, and with their united power had made war upon him: that he had been victorious and had taken Zembei prisoner.' Instead of a cruel death, which we should have imagined the uncle now to have been exposed to, he was treated it seems with great lenity and respect, his wives and children were returned to him and he was only so far considered a captive as never to be suffered to leave the village in which the king resided.

They have some singular practices in the interment of their dead. The bodies of their children are deposited in ant-hills, which have been excavated by the ant-eater. On their chiefs only is bestowed the honor of a grave, which is generally dug very deep in the places where their oxen stand during the night; the rest of their dead are thrown promiscuously into a ditch, and left without covering to be devoured by the wolves, whom the Caffres never attempt to destroy, from a consideration of their services. With this apparent neglect of their bodies, a Caffre not only cherishes great respect for his deceased relatives, but to swear by their memory is to take the most sacred oath.

The Caffre women possess cheerful and animated countenances, are modest in their carriage, lively and curious, but not intruding; and, though of a color nearly approaching to black, their well-constructed features, their beautifully clean teeth, and their eyes dark and sparkling, combine to render many comparatively handsome. They have neither the thick lips nor the flat noses of African negroes. As the females of a nation but partially civilised, they are remarkable for a sprightly and active turn of mind, and in this respect are totally different from their neighbours the Hottentots. In point of general figure, however, the latter seem to have the advantage in their youth.

The men are tall, muscular and robust, of an open countenance, and manly graceful figure. Good nature and intelligence are depicted in their features, which never betray any signs of fear or suspicion. Their hair, which is short and curling, and their skin, which is nearly black, are rubbed over with a solution of red ochre; and though a few wear cloaks of skin, most of them go quite naked. The women wear cloaks that extend below the calf of the leg; and their head-dress, which is a leather cap, is adorned with beads, shells, and polished pieces of iron or copper.

CAFFRISTAN, or Kuttore, an extensive mountainous region of India, bounding Cabul to the north, and extending northward from the thirty-fifth degree of latitude to Cashmere. The general level of this country is considerably above those on each side of it. Kuttore is the general name of this tract; that of Caffristan signifies the land of infidels. It is classed as a dependency of Cashgar, by the people of Hindostan, but is little known to them. It seems to be governed by a number of petty chieftains, and has members worth the attention of the various enquirers of the neighbourhood.

CAGANUS, or Cacanus, an appellation anciently given by the Huns to their kings. The word appears also to have been formerly applied to the princes of Muscovy, now called czars. From the same also, probably, the Tartar title cham or kan, had its origin.

CAGAO, in natural history, the Indian name of a large bird which inhabits the mountains, and feeds on pistachio nuts, and other fruit which it swallows whole. It is very voracious, and is of the size of a hen, but has a longer neck.

CAGE, *v.* & *n.* Fr. *cage*; Ital. *gaggia*, *gabbia*; Belg. *kovi*; Lat. *cavea*; a place of confinement; a prison; a coop for birds; generally a place shut in and fastened.

Take any bird and put it in a *cage*,
And do all thin entente and thy corage,
To foster it tenderly with mete and drinke
Of all deintees that thou canst bethinke,
And keepe it all so clenely as thou may;
Although the *cage* of gold be never so gay,
Yet had this bird, by twenty thousand fold,
Lever in a forest that is wide and cold,
Gon eten worms, and swiche wretchednesse;
For ever this bird will don his besinesse
To escape out of this *cage* whan that he may:
His libertee the bird desireth, ay.
Chaucer's Canterbury Tales.

See whether a *cage* can please a bird? or whether a dog grow not fiercer with tying? *Sidney.*

He taught me how to know a man in love; in which *cage* of rushes, I am sure you are not a prisoner. *Shakspeare.*

He swoln, and pampered, with high fare,
Sits down, and snorts, *caged* in his basket chair.
Donne.

Have you not seen the nightingale
A prisoner like coopt in a *cage*;
How doth she chant her wonted tale
In that her narrow hermitage;
Even then her charming melody doth prove
That all her bars are trees, her *cage* a grove.
Old Song. Sir R. L'Estrange.

The bird in thrall, the more contented fyes,
Because the hawke so neere her she espyes,
And though the *cage* were open, more would feare
To venture out than to continue there;
So if thou couldst perceive what birds of prey
Are hovering round about thee every day,
To seize thy soule (when she abroad shall goe,
To take the freedome she desireth so),
Thou farre more fearfull, wouldst of them, become
Then thou art now of what thou flyest from.
George Withers.

Though slaves, like birds that sing not in a *cage*,
They lost their genius, and poetick rage;
Homers again and Pindars may be found,
And his great actions with their numbers crowned.
Waller.

And parrots, imitating human tongue,
And singing birds in silver *cages* hung;
And every fragrant flower, and odorous green,
Were sorted well, with lumps of amber laid between.
Dryden.

The reason why so few marriages are happy, is, because young ladies spend their time in making nets, not in making *cages*. *Swift.*

A man recurs to our fancy, by remembering his garment; a beast, bird, or fish, by the *cage*, or court-yard, or cistern, wherein it was kept.
Watts on the Mind.

The yelping cur her heels assaults;
The magpie blabs out all her faults;
Poll in the uproar, from her *cage*,
With this rebuke outscreamed her rage. *Gay.*

So settling on his *cage*, by play,
And chirp, and kiss, he seemed to say,
You must not live alone.
Nor would he quit that chosen stand,
Till I with slow and cautious hand,
Returned him to his own.
Cowper. The Faithful Bird.

You gave me last week a young linnet,
Shut up in a fine golden *cage*;
Yet how sad the poor thing was within it—
O how did it flutter and rage;
Then he moped and he pined,
That his wings were confined,
Till I opened the door of his den;
Then so merry was he,
Because he was free,
He came to his *cage* back again.
Garrick.

CAGES, CAVEÆ, in antiquity, were places in the ancient amphitheatres, wherein wild beasts were kept, ready to be let out for sport. These beasts were usually brought to Rome shut up in oaken or beechen cages, artfully formed, and covered or shaded with boughs, that the creatures, deceived with the appearance of a wood, might fancy themselves in their forest. The fiercer sort were pent in iron cages, lest wooden prisons should be broke through. The caveæ were a sort of iron cages different from dens, which were under ground and dark; whereas the caveæ being airy and light, the beasts rushed out of them with more alacrity and fierceness than if they had been pent under ground. Iron cages have been formerly used for the security or punishment of prisoners. Bajazet is said to have died in one when prisoner to Timour the Tartar, but the correctness of this idea is doubted, and seemingly on good grounds, by some historians. They were used in France by Louis XIV., and in England by Edward I., who confined the countess of Buchan in this manner, at the castle of Berwick-upon-Tweed.

CAGGAW, in botany, a name given by the people of Guinea, to a plant which they boil in water, and use the decoction to wash the mouth with, as a cure for the tooth-ache. Its leaves are smooth and shining, like those of the laurel, but they are thin, and bend like those of the bay.

CAGIT, in natural history, a name given by the people of the Philippine Islands, to a species of parrot, very common in their woods; it is of a middling size, and is all over of a fine green color.

CAGLIARI, the capital of the island of Sardinia, is seated on the declivity of a hill, has a university, and is an archbishop's see. The harbour, which is at the mouth of the river Mulargia, is excellent, and the town has a good trade; but it is a place of no strength, and small size. It was taken, with the whole island, by the English in 1708, who transferred it to the emperor Charles VI.; but it was retaken by the Spaniards in 1717, and about two years afterwards ceded to the duke of Savoy, in lieu of Sicily. The objects of traffic are salt, oil, and wine. Inhabitants about 30,000.

CAGLIARI (Paul), called also Paulo Veronese, an excellent painter, born at Verona, in 1532. Gabriel Cagliari, his father, was a sculptor, and Antonio Badile, his uncle, was his master in painting. He was esteemed the best of the Lombard painters, and styled, il pittor felice, the happy painter. There is scarcely a church in Venice where some of his performances are not to be seen. De Piles says, 'his picture of the marriage at Cana, is almost the triumph of

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painting itself.' Philip II. of Spain, sent for him to paint the Escurial, and made him great offers; but Paul excused himself from leaving his own country, where his reputation was so well established, that most of the princes of Europe ordered their ambassadors to procure something of his hand at any rate. Titian used to say, he was the ornament of his profession. And Guido Reni being asked which of his predecessors he would choose to be, were it in his power, after Raphael and Corregio, named Paul Veronese. He died of a fever at Venice in 1588, and had a tomb and a statue of brass erected to his memory in the church of St. Sebastian.

CAHIRCONRIGH, a conical mountain of Ireland, in Kerry, Munster, more than 700 yards above the sea level, and forming a sort of peninsula between the bays of Castlemayn and Tralee.

CAHILLO, in ichthyology, a name given by some authors to the lupus marinus, or wolf fish.

CAHORS, a considerable walled town of France, in the department of the Lot, and ci-devant province of Querci. It is seated on a peninsula of the river, and built partly on a craggy rock. The principal street is narrow; and terminates in the market-place, in which is the town-house. The cathedral is a Gothic structure, and has a large square steeple. It has a university, and is forty-five miles north-west of Toulouse. It has a population of 11,728 inhabitants; and manufactures of woollen and fine linen, brandy, and oil. In the vicinity is raised the celebrated vin de grave. It had formerly a university, and is still a bishop's see.

CAHYS, a dry measure for corn, used in some parts of Spain, particularly at Seville and at Cadiz. It is near a bushel of our measure.

CAIA, in Roman antiquity, a common prænomen among the women, as Caius was among the men. Hence the custom of the bride saying, on being introduced into her husband's house, 'Ubi tu Caius, ego Caia,' i. e. 'Where you are master, I will be mistress.'

CAIA, in the Turkish military orders, an officer serving in the post of a deputy or steward, and acting for the body of janissaries.

CAJA, in entomology, the specific name of the garden tiger moth, a well-known species of phalæna. The anterior wings are whitish, with large fuscous spots: posterior ones red, with black spots.

CAJANA, a town of European Russia, in Finland, the capital of the district of Cajana Lehn. It stands on lake Ulea, on the borders of Lapland, where the Pytha forms a tremendous cataract. The inhabitants gain their living by tillage. It is seventy-two miles south-east of Uleaborg.

CAIANI, in ecclesiastical history, a sect of heretics, thus denominated from one Caianus of Alexandria, their leader, otherwise called Aphthartodocetæ.

CAJANIA, a province of Sweden, the same with East Bothnia. See BOTHNIA.

CAIAPHAS, high priest of the Jews, succeeded Simon, the son of Camith, about A. D. 16, or as Calmet thinks, in 25, and married the daughter of Annas, who was conjoined with him in the priestly office. His iniquitous conduct with regard to our Saviour, with his strong, though undesigned, expression of the necessity of one dying to save others, are recorded by the evangelists. About two years after our Saviour's death, Caiaphas and Pilate were both deposed by Vitellius, then governor of Syria, and afterwards emperor: whereupon Caiaphas, unable to bear this disgrace, killed himself, A. D. 35. See ANNAS.

CAIC, CAICA, or CAIQUE, in sea language, is used to denote the skiff or sloop belonging to a galley. The Cossacs give the same name to a small kind of bark used in the navigation of the Black Sea. It is equipped with forty or fifty soldiers; their employment is a kind of piracy.

CAICOS, a cluster of islands in the Atlantic, between St. Domingo and the Bahama islands, on the edge of one of the Bahama banks. North of this bank are four or five islands of considerable extent. The largest, called the Grand Caicos, is due north from St. Domingo, and about 400 miles from New Providence; about sixty miles long, and two or three broad. There are here several good anchorages, particularly that at St. George's Key, where there is a port of entry, and a small battery. The harbour admits vessels drawing fourteen feet water. But none of the settlements are very flourishing. Long. 72° W., lat. 21° N.

CAICUS, in entomology, a species of sphinx, inhabiting Surinam. Color of the wings fuscous: posterior pair rufous, streaked with black; abdomen cinerous, with black rings.

CAJEPUT OIL, the volatile oil obtained by distillation from the leaves of the cajeputa officinarum, the melaleuca leucadendron of Linnæus, frequent on the mountains of Amboyna, and other Molucca islands. It is prepared in great quantities, and sent to Holland in copper flasks. As it comes to us, it is of a green color, from the copper of the flasks; very limpid, lighter than water, of a strong smell resembling camphor, and a strong pungent taste, like that of cardamoms, and is often adulterated with other essential oils, colored with the resin of milfoil. It burns entirely away, without leaving any residuum. In medicine it is used as a general stimulant and antispasmodic. Hence it is recommended in flatulent colic, paralysis, chorea, hooping cough, and convulsive disorders in general. The dose is from one to six drops. It is also of considerable use externally applied for the relief of toothache, rheumatic pains, sprains, &c. Insects have a great aversion to this oil; the vapor of which appears to intoxicate and kill them. Cajeput oil is a perfect solvent of caoutchouc, from which solution a fine drying varnish may be made.

CAJETA, in ancient geography, a port and town of Latium, so called from Æneas's nurse; now called Gaeta.

CAJETAN (Cardinal), was born at Cajeta, in Naples, in 1469. His proper name was Thomas de Vio; but he adopted that of Cajetan from the place of his nativity. He defended the authority of the pope, which suffered greatly at the council of Nice, in a work entitled, Of the Power of the Pope; and for this work he obtained the bishopric of Cajeta. He was afterwards raised to the archiepiscopal see of Palermo, and in 1517 was made a cardinal by pope Leo X. The year after, he was sent as legate into Germany, to quiet the commotions raised against indulgences by Martin Luther; but Luther, under protection of Frederic, elector of Saxony, set him at defiance; for though he obeyed the cardinal's summons in repairing to Augsburg, yet he rendered all his proceedings ineffectual. He died in 1534. He wrote Commentaries upon Aristotle's Philosophy, and upon Thomas Aquinas's Theology; and made a literal Translation of the Old and New Testament.

CAIFA, Caipha, or Haifa, a sea-port town of Palestine, on the south side of the bay of Acre. From a poor village this has sprung up on the ruins of an ancient city, at the foot of Mount Carmel. It is built without plan, and defended by walls on the land side, which were constructed by Daher, a late chief of Acre; he also established a custom-house here, at a time when the port of Acre was choked. It is now governed by an Arab; the inhabitants are Mahommedans and Greeks. In March, 1799, the Turks evacuated Caifa at the approach of the French general, Kleber, leaving abundant stores in the place. The French established a garrison here, and built ovens for the use of the army, which the British soon after made an unsuccessful attempt to destroy. Distant thirteen miles south-west of Acre.

CAI-FONG, or Kai-fong, a city of China, the capital of the province of Honan. It stands only two leagues from the Hoang-ho, or Yellow River, and is situated so low that the bed of the river is higher ground than the city, and, to guard against inundations, strong dykes or embankments have been constructed, which extend above ninety miles. When it was besieged by 100,000 rebels, in 1642, the commander of a body of forces sent for its relief, resolved to attempt drowning the enemy, by breaking down the embankment. His stratagem was successful; but, while the enemy was destroyed, the inundation overwhelmed also the city, and 300,000 of the inhabitants perished. At that time it was nine miles in circumference. It has been subsequently re-built, but in an inferior style. Its jurisdiction comprehends four cities of the second class, and thirty of the third. Distant 315 miles south-west of Pekin.

CAILLE (Nicholas Louis de la), an eminent mathematician and astronomer, was born at Rumigny, in the diocese of Rheims, in 1713. In 1729 he went to Paris, where he studied the classics, philosophy, and mathematics. Afterwards he studied divinity at the college of Lisieux, was ordained a deacon, and officiated in the church of the college of Mazarin several years; but he never entered into orders, apprehending that his astronomical studies might too much interfere with his religious duties. In 1739 he was conjoined with M. de Thury, son of M. Cassini, in verifying the meridian of the royal observatory, through the whole kingdom of France. In November, the same year, whilst he was engaged in the operations which this grand undertaking required, he was elected into the vacant mathematical chair, which the celebrated M. Varignon had so worthily filled. Here he began to deliver lectures about the end of 1740; and an observatory was erected for his use in the college, and furnished with the best instruments. In May 1741, he was admitted into the Royal Academy of Sciences, as an adjoint member for astronomy. Besides many excellent papers in their memoirs, he published Elements of Geography, Mechanics, Optics, and Astronomy. He carefully computed all the eclipses of the sun and moon that had happened since the Christian era, which were printed in a book published by two Benedictines, entitled L' Art de Verefier les Dates, &c., Paris, 1750, in 4to. Besides these, he compiled a volume of Astronomical Ephemerides, from 1745 to 1755; another from 1755 to 1765; a third from 1765 to 1775; an excellent work, entitled Astronomiæ Fundamenta Novissimis Solis et Stellarum Observationibus Stabilita; and the most correct solar tables that ever appeared. Having gone through a seven years series of astronomical observations in his own observatory, he formed a project of going to observe the southern stars at the Cape of Good Hope. This was highly approved of by the academy, and by the prime minister Comte d' Argenson, and readily agreed to by the states of Holland. At length, on the 21st of November, 1759, he sailed for the Cape, and arrived there on the 19th of April, 1751. Here he accomplished the measurement of a degree of latitude, and returned to Paris the 27th of September, 1754; and at his coming into port, he refused a bribe of 100,000 livres, offered by one that thirsted less after glory than gain, to be sharer in his immunity from custom-house searchers. After receiving the congratulatory visits of his more intimate friends and the astronomers, he drew up a reply to some strictures, which professor Euler had published relative to the meridian, and then he settled the results of the comparison of his own, with the observations of other astronomers, for the parallaxes. His fame was now established upon a firm basis, and he was unanimously elected a member of the Royal Society at London; of the institute of Bologna; of the Imperial Academy at Petersburgh; and of the royal academies of Berlin, Stockholm, and Gottingen. In 1760 he was attacked by a severe fit of the gout; which, however, did not interrupt his studies; for he then planned out a History of Astronomy, through all Ages, with a Comparison of the Ancient and Modern Observations, and the Construction and Use of the Instruments employed in making them. In order to pursue this task, in a suitable retirement, he obtained a grant of apartments in the royal palace of Vincennes; and whilst his astronomical apparatus was erecting there, he began printing his catalogue of the southern stars, and the third volume of his Ephemerides. The state of his health was, towards the end of 1763, greatly reduced. This induced him to settle his affairs; his MSS. he committed to the care and discretion of his esteemed friend M. Maraldi. It was at last determined that a vein should be opened: but this brought on an obstinate lethargy, of which he died, aged forty-nine.

CAILLOMA, a town of Peru, in the province of Collahuas, famous for the silver mines of its neighbourhood. The country around is barren, but the mountains are supposed to contain many untouched veins of precious metal. It is forty-six miles N. N. E. of Arequipa.

CAIMACAN, or **Caimacam**, in the Turkish affairs, a dignity in the Ottoman empire, answering to lieutenant or rather deputy, among us. There are usually two caimacans; one resides at Constantinople, as governor thereof; the other attends the grand vizier in quality of his lieutenant, secretary of state, and first minister of his council, and gives audience to ambassadors Sometimes there is a third caimacan, who attends the sultan; whom he acquaints with any public disturbances, and receives his orders concerning them.

CAIMAN, the American name of a crocodile.

CAIN, the eldest son of Adam and Eve, and the first man born into this world. He is generally styled the first murderer; but, although it is certain that he killed his brother Abel, it appears by no means equally certain that he intended it. Death, except that of the beasts sacrificed by Abel, was then hardly known; and the extent of suffering which the human body could bear, without inducing death, was totally unknown. It seems, therefore, probable, that Cain had killed his brother in a fit of passion, when he intended nothing more than a severe drubbing. This seems further confirmed by the punishment inflicted on him by the Searcher of hearts; which was only banishment, a punishment often inflicted since for manslaughter. He is the first builder on record. Philo pretends that he built seven cities.—*Alsted. Chron.* p. 257.

CAINAN, or **Kenan**, the son of Enoch, great-grandson of Adam, and the fourth of the Antediluvian patriarchs, was born A. M. 325: begat Mahalaleel in 395, and died in 1235, aged 910. There was another Cainan, the son of Arphaxad, and father of Salah; mentioned only in the Septuagint, Gen. x. 24., and xi. 12; and in Luke, iii. 36: of this name no notice is taken in the Hebrew text, the Samaritan, or the Vulgate.

CAINIANS, or **Cainites**, a sect of heretics in the second century, so called on account of their great respect for Cain, and Judas, and others of the same class, who, according to them, had a mighty knowledge of all things. Dr. Lardner, however, disputes the credibility of the relations, of Epiphanius and Irenæus, concerning this people.

CAJOLE', *v.* }
Cajol'er, }
Cajol'ery, *n.* } Fr. *cajoler;* Goth. *goela*, *gagoela*, to entice. See to Gull. It describes a purpose, and that of the worst kind, deception; to cajole is to entrap by flattery, coaxing and wheedling.

> The one affronts him, while the other *cajoles* and pities him: takes up his quarrel, shakes his head at it, clasps his hand upon his breast, and then protests and protests. *L'Estrange.*

> Thought he, 'tis no mean part of civil
> State prudence, to *cajole* the devil. *Hudibras.*

> A plan to rob the house was laid,
> The thief with love seduced the maid;
> *Cajoled* the cur, and stroked his head,
> And bought his secresy with bread.
>
> *Gay.*

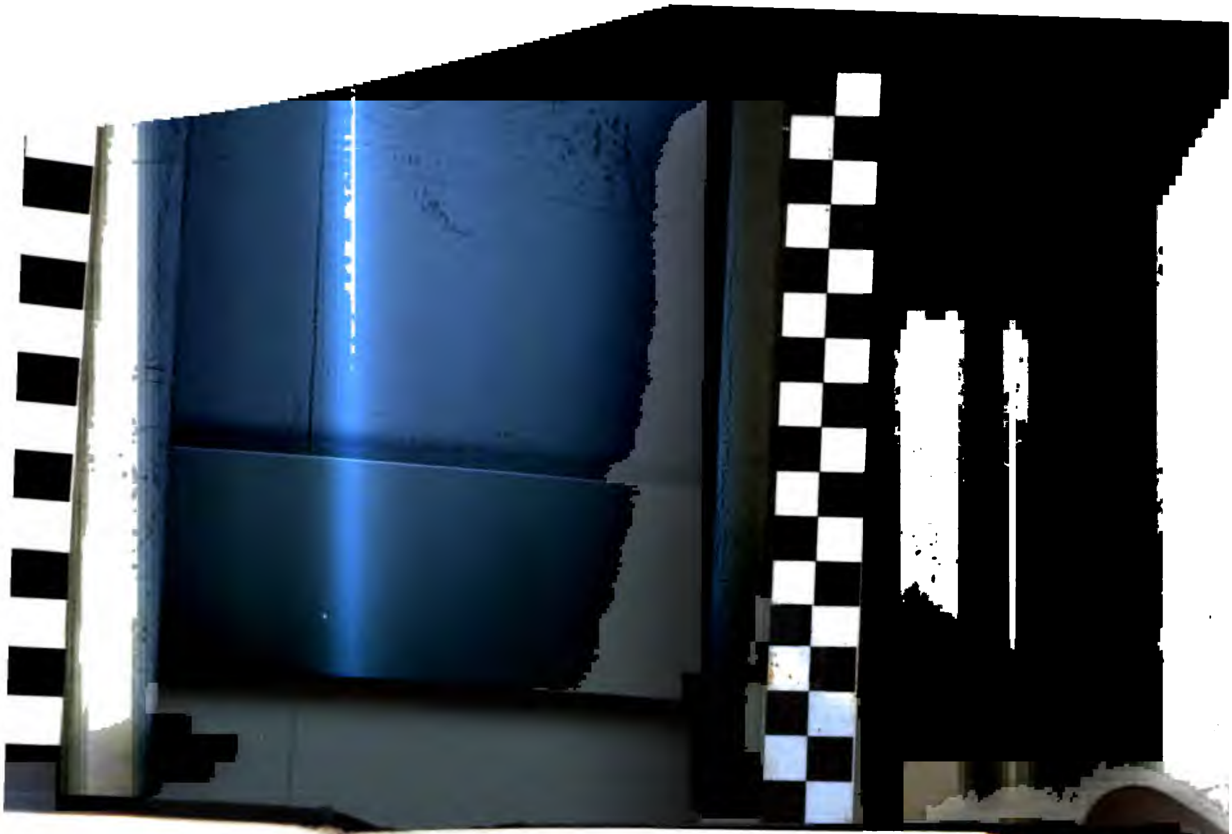
> If the king were present, Cleon, there would be no need of my answering to what you have just proposed. He would himself reprove you for endeavouring to *cajole* him into an imitation of foreign absurdities, and for bringing enmity upon him, by such unmanly flattery. As he is absent, I take upon me to tell you, in his name, that no praise is lasting but what is rational.
>
> *Q. Curtius.* Trans.

CAIQUE. See Caic.

CA Ira, French, the name, or rather chorus of a political French song, very popular all over France, in the beginning of the revolution. The words literally signify, it will do, or it will go on, and are said to have been used almost proverbially by the late Dr. Franklin, concerning the American revolution; from which circumstance they were adopted as the chorus of the French revolution song. Songs, however, as well as states, are subject to revolutions. This song and the Marseilloise hymn, another popular French song, were both prohibited from being sung in public by the French directory, soon after the revolution in September 1797, they being considered as rallying signs of the party in opposition.

CAIRNS, or **Carnes**, the vulgar name of those heaps of stones which are to be seen in many places of Britain, particularly Scotland and Wales. They are composed of stones of all dimensions, thrown together in a conical form, a flat stone crowning the apex. Various causes have been assigned by the learned for these heaps of stones. They have supposed them to have been, in times of inauguration, the places where the chieftain elect stood to show himself to best advantage to the people; or the place from whence judgment was pronounced; or to have been erected on the road side in honor of Mercury; or to have been formed in memory of some solemn compact, particularly where accompanied by standing pillars of stones; or for the celebration of certain religious ceremonies. Such might have been the reasons, in some instances, where the evidences of stone chests and urns are wanting: but these are so generally found that they seem to determine the most usual purpose of the piles in question to have been for sepulchral monuments. Even this destination might render them suitable to other purposes, particularly religious, to which by their nature they might be supposed to give additional solemnity According to Toland, fires were kindled on the tops of flat stones, at certain times of the year, particularly on the eves of the first of May and the first of November, for the purpose of sacrificing; at which time all the people having extinguished their domestic fires, rekindled them from the sacred fires of the cairns. In general, therefore, these accumulations appear to have been designed for the sepulchral protection of heroes and great men. The stone chests, the repository of the urns and ashes, are lodged in the earth: sometimes only one, sometimes more, are found thus deposited; and Mr. Pennant mentions an instance of seventeen being discovered under the same pile. Cairns are of different sizes, some of them very large. Mr. Pennant describes one in the island of Arran 114 feet over, and of vast height. They may justly be supposed to have been proportioned in size to the rank of the person, or to his popularity: the people of a whole district assembled to show their respect to the deceased; and, by an active honoring of his memory, soon accumulated heaps equal to those that astonish us at this time. But these honors were not merely those of the day; as long as the memory of the deceased endured not a passenger went by without adding a stone to the heap; they supposed it would be an honor to the dead, and acceptable to his manes. To this moment there is a proverbial expression among the Highlanders, allusive to the old practice: a suppliant will tell his patron, 'Curri mi doch er do charne,' 'I will add a stone to your cairn;' meaning, when you are no more, I will do all possible honor to your memory. Cairns are to be found in all parts of our islands, in Cornwall, Wales, and all parts of north Britain; they were in use among the northern nations; Dahlberg, in his 323d plate, has given the figure of one. In Wales they are called carneddau: but the proverb taken from them there, is not of the complimental kind: 'Karn ar dy hen,' or, 'A cairn on your head,' is a token of imprecation.

CAIRO, or GRAND CAIRO, (Victorious), sometimes called the queen of cities, stands upon the east bank of the Nile, a little above the Delta, or plain of Lower Egypt. Founded, according to the oriental writers, in the sixteenth century, it received its present name from Moaz, the first caliph, in memory of his conquest of Egypt. Here he erected a splendid palace; but two centuries elapsed before Cairo could be considered as anything but the famed residence of a military sovereign. In the Crusades the neighbouring capital of Egypt, Fostat, was reduced to ashes, to disappoint the Christians of their booty; and the inhabitants sought an asylum in Cairo, which from that period became the capital of this country. It was greatly enlarged, adorned, and fortified, by the emperor Saladin, and was in the height of its prosperity about the commencement of the fifteenth century. As a central emporium for the trade of Europe and Asia, and closely connected with Alexandria, it was a first rate commercial city, and respectable also for men of science and learning. But the conquest of Egypt by the Turks, and the discovery of a passage to India by the Cape of Good Hope, diverted this flourishing trade, and all the intercourse of Europe with the east into a different channel, and caused a decline from which it has never arisen. But Cairo is still described as a large city, equal in extent to Paris. It is of a crescent form, more than nine miles in circumference; and seen from the Nile, from which it is about a mile distant, it presents a most magnificent scene, in which the citadel towering above innumerable other lofty edifices, and countless minarets, all springing as it were out of a grove of the richest foliage, are the most conspicuous objects. On a nearer approach the streets are found to be crooked, narrow, and unpaved; and from the crowds of men and animals, pressing along through dust and filth, are any thing but agreeable. The houses are chiefly of wood, or unburnt bricks dried in the sun, and consist only of a single story. Some, however, are constructed of a soft stone. The houses are crowded into groupes, with large intervening spaces, all of which, as well as the courts and gardens within the walls, are covered with water by the welcome inundation of the Nile. The terraced roofs of the houses are described by Sonnini as covered with innumerable turtle doves, crows, kites, and vultures, which are never disturbed by the inhabitants, and consequently exhibit a degree of tameness and familiarity which appears surprising to an European. In the interior the better houses have a large hall, rising the whole height of the house, and covered with a small dome. Every thing here is arranged with a view to coolness; the floor is inlaid with marble and colored earthenware, and fountains spring up into marble basins. Mats and mattresses cover the floor, over which is spread a rich carpet, on which they sit cross-legged. Around the wall is a sort of sofa with cushions, to support the back and elbows; and above, at the height of seven or eight feet, a range of shelves adorned with porcelain. The walls are either chequered with sentences from the Koran, or with painted foliage and flowers. The windows have neither glass nor moving sashes, but open lattice work, which frequently costs more than our glazing; and into which a dim light enters from the inner courts, pleasingly qualified by their verdure. The widest street in Cairo is one which traverses the whole length of the city, but would be regarded only as a lane in Europe. The others are so narrow, that a slight covering is frequently thrown over them, to exclude the sun's rays. Most of the streets, or at least every district, has a gate which is shut as soon as it is dark. A canal supplied by the Nile, called the Calisch, and which is from fifteen to twenty feet broad, runs through the city. Its mouth, when the waters of the river begin to increase, is closed by a mound of earth, which is not removed till they have risen to a certain height. The opening then takes place, and a magnificent festival is celebrated on the occasion. The bashaw places himself in a tent, which stands by the side of the canal; nuts, melons, and some small coins, are thrown in, and a discharge of fire-works takes place. From the river to the city the canal is only an ill kept ditch, without any lining, or even any regular boundary. The Arabs indeed assert, that it is paved with marble, but if so, it is entirely concealed beneath the mud. Along the line of it, in the city, there are a number of large squares, from a quarter to three quarters of a mile round, into which its water is conducted. During the season of inundation, these of course bear the appearance of lakes, and, being bordered by the finest houses in Cairo, present a scene of great beauty, especially when covered with pleasure boats and barges, and enlivened by music and fire works. When the inundation subsides the lake becomes a marsh, and a repository of mud, from which the most offensive vapors exhale. The whole, however, is quickly dried up by the intense heat of the sun, and it is then soon covered by luxuriant vegetation. It now often becomes a theatre for those exhibitions which form the delight of the inhabitants; and in which



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jugglers, tumblers, mountebanks, and dancing girls, display in succession their various feats. The citadel, which stands on a rocky eminence, is three miles in circumference, and affords one of the most splendid views in Egypt. It includes the palace of the paçha, the barracks of the janissaries, and some remains of antiquity; among which is Joseph's well, dug to the depth of 276 feet through the solid rock. The diameter of the well varies at different depths, and, where it is contracted, stages are formed for oxen to drive a wheel for raising the water. A huge pile of building within the citadel is called Joseph's palace, the great hall of which has been much admired.

Among the other public buildings of this city, the reservoirs for water, and the baths, are worth notice; the warehouses as well as the market places, are spacious and commodious; but the mosques, of which more than 300 are erected within the walls, form, with their numerous and lofty minarets, the chief ornament of the place. The Jews have a synagogue here, and the Greeks, and other sects of Christians, places of worship.

A caravan arrives at Cairo from Abyssinia, loaded with the rich productions of the interior of Africa, and, being joined by another from the western part of Africa, it proceeds towards Arabia. This perilous journey is undertaken partly for religious, and partly for commercial purposes. Having performed the prescribed ceremonies at the holy city, and exchanged their merchandise for the commodities of the east, the immense body of travellers, amounting, it is said, sometimes to 100,000, return from Mecca by the same route. Its manufactures are linen cloth, silk stuffs, sugar, sal-ammoniac, salt-petre, and coarse gunpowder; glass lamps, and several kinds of leather. The mode of hatching chickens by means of artificial heat, which has been long known in Egypt, is still practised here. Cairo also contains a book-market, where a prodigious number of beautiful manuscripts are exposed for sale. Here Dr. Clarke purchased for seven pounds a complete copy of the Arabian Nights, having many tales which have not been translated into the European languages; but it was unfortunately lost. Many of the Mamelukes collect large and expensive libraries. The police here is well managed, and a general quiet results. The principal occasions on which it is disturbed, are those of marriage and circumcision. The bride, a few days before the ceremony, walks in procession to the bath, where she remains till the nuptials, when a second procession takes place. On these occasions, all the magnificence which a family is able to display is ostentatiously paraded. The bride, preceded by a band of music, walks below a magnificent canopy, surrounded and followed by numerous attendants. Every article of finery which can be collected is carried by the attendants, a small portion being assigned to each. The processions for the other purpose are also splendid, and attended by numerous horsemen and bands of music.

The population of Cairo is variously stated, from the extreme amounts of 250,000, 300,000, to 700,000, souls; it is composed of people of all countries and religions. Among those of oriental origin, and who have it in their power to indulge in them, the luxurious manners and customs of the east prevail. Sailing on the Nile is one great amusement of all classes in Cairo, and vessels of a light construction are elegantly fitted up for this purpose. Boulac, about a mile to the west of Cairo, on the right bank of the river, is its principal port. It suffered severely from the French, who plundered and burned it to the ground.

About a mile distant, higher up the river, stands Fostat, or Old Cairo, as it is sometimes called, formerly the capital of Egypt, and still a populous place. The great canal, which formed a communication between the Nile and the Red sea, passes off from the river near this place, and proceeds towards Cairo, where it divides the city as we have already mentioned. This place is inhabited in a great measure by Copts, who have twelve churches, and, among others, one of peculiar sanctity, which they report to have been the residence of the Virgin Mary, when she was compelled to fly into Egypt. Their churches generally consist of a nave and two aisles, with galleries supported by pillars, and adorned in front with columns that support the roof. The part containing the altar is separated by a partition that is finely adorned with carving, and inlaid with ivory and tortoise-shell. The patriarch of the Coptic church is established at Old Cairo. A street is called by his name, in which is the church of St. Macarius, where he is elected and enthroned. The Jews have also an ancient synagogue here. Dr. Pococke saw two ancient manuscripts of the law, and a manuscript of the Bible amongst them, pretended to have been written by Ezra. To the north-east there is an ancient mosque, called Amrah, said to contain nearly 400 pillars, collected from various more ancient edifices. In Old Cairo are granaries, which are honored with the name of Joseph; they are square courts, surrounded with walls fifteen or twenty feet high, and without any roof. The grain is only covered with matting, which ill protects it from birds, for whose depredations an allowance is said to be made to the keepers The aqueduct, a rustic edifice, by which water is conveyed to the castle of New Cairo, is a superior work; it is a hexagon building, each side being eighty or ninety feet in length, and about as many in height; on the outside there is an easy ascent for oxen, who turn the Persian wheels by which the water is raised to the top. The whole is supported by arches from ten to fifteen feet wide, of which Pococke counted 289, but Sonnini 350. Opposite to it is the mouth of the canal before mentioned. On an island in the middle of the river (Rhoda), is the celebrated Mikias Nilometer, or measurer of the Nile, the purpose of which is to ascertain the rising of the river during the annual inundation. It is composed of a noble marble pillar, surmounted by a Corinthian capital, which rises from the centre of a basin having a communication with the Nile, and, being graduated, indicates the increase in the height of that important stream. A splendid dome supported by columns, surmounts the pillar. This building is said to be 1000 years old.

CAIRO, a small town of Italy, in Piedmont, in tne Duchy of Montferrat, between Acqui and Finale, on the road to Savona. Here is a considerable carrying trade, and here was fought on 21st September, 1794, a bloody battle between the French and the Austro-Sardinians, in which the latter were defeated. In 1796 the town was taken by the French. It stands on the river Bormida; twelve miles E.N.E. of Ceva, eighteen south of Acqui, and twenth-five E.N.E. of Mondovi. Population 4000.

CAIRO is also the name of a post-township of the United States, in Greene County, New York.

CAISSON, in military affairs, a wooden frame or chest, made square, the side planks about two inches thick: it may be made to contain loaded shells. Caissons are buried under ground, at the depth of five or six feet, under some work the enemy intends to possess himself of; and when he becomes master of it, fire is put to the train, which inflames the shells and blows up the assailants. Sometimes a quantity of loose powder is put into the chest on which the shells are placed, sufficient to put them in motion, and raise them above ground; at the same time that the blast of powder sets fire to the fuze in the shells, which must be calculated to burn from 1 to 2½ seconds. Also a kind of flat-bottomed boat in which brick or stone work is built, then sunk to the bottom for forming the foundations. Some of the caissons which were used by Labelye, for the erection of Westminster-bridge, contained above 150 load of fir timber. They are also used in dock-yards to raise ships,—the water being let in so as to allow the caisson to be brought under the bottom of the vessel, it is then pumped out, and the buoyancy of the large caisson raises the vessel. The ship's sides and bottom tending to fall outwards, by their own weight, and the sides and bottom of the caisson tending to be forced inwards, by the external pressure of the water, it is obvious, that by placing props or shoars between, both will be supported, while the ship will ride with all her stores on board, and masts standing nearly as easy as when in water.

CAITAIA, in zoology, the name of an American monkey, remarkable for its smell, having somewhat of a scent of musk; its hair is long and of a whitish-yellow color; its head is round; its forehead depressed, and very small; its nose small and flatted, and its tail arched. It is easily tamed, but very clamorous and quarrelsome.

CAITHNESS, otherwise called the county of Wick, is the most northern county of Scotland. It is bounded on the east by the ocean, and by Strathnaver and Sutherland on the south and south-west; from these it is divided by the mountain Orde, and a continued ridge of hills as far as Knockfin, and thence by the whole course of the river Hallowdale. On the north it is washed by the Pentland frith, which divides it from the Orkneys. It extends thirty-five miles from north to south, and about twenty from east to west. The coast is rocky, and remarkable for a number of bays and promontories. Of these, the principal are Sandside-head, to the west, pointing to the opening of Pentland-frith; Orcas, now Holborn-head and Dunnet-Head, both pointing northward to the frith. Scribister-bay, on the north-west, is a good harbour, where ships may ride securely. Rice-bay, on the east side, extends three miles in breadth; but is of dangerous access, on account of some sunk rocks at the entrance. At the bottom of this bay appear the ruins of two strong castles. the seat of the earl of Caithness, called Castle Sinclair, and Gernego, joined to each other by a draw-bridge. Duncan's-bay, otherwise called Dunsby-head, is the north-east point of Caithness, and the most extreme promontory in Britain. At this place the breadth of the frith does not exceed twelve miles. It is the ordinary ferry to the Orkneys. Here is likewise Clythness pointing east and Noshead pointing north-east. The sea in this place is very impetuous, being in continual agitation from violent counter-tides, currents, and vortices. The only island belonging to this county is that of Stroma, in the Pentland frith, two miles from the main land. The county of Chithness, though chiefly mountainous, flattens towards the sea-coast, where the ground is arable, and produces good harvests of oats and barley, sufficient for the natives, and yielding a surplus for exportation. Caithness is well watered with small rivers, brooks, lakes, and fountains, and affords a few woods of birch, but is in general bare of trees; and even those the inhabitants plant are stunted in their growth. Lead is found at Dunnet, copper at Old Urk, and iron ore at several places; but these advantages are not improved. The air of Caithness is temperate, though in the latitude of 58°, where the longest day in summer lasts eighteen hours; and when the sun sets he makes so small an arch of a circle below the horizon, that the people enjoy twilight until he rises again. The fuel used by the inhabitants of Caithness consists of peat and turf, which the ground yields in great plenty. The forests of Moravins and Berridale afford abundance of red deer and roe-bucks: the country is well stored with hares, rabbits, growse, heathcocks, plover, and all sorts of game; besides a peculiar species of birds called snow-fleets; which are about the size of a sparrow, exceedingly delicious, and come hither in large flights about the middle of February, and depart in April. The hills are covered with sheep and black cattle, which are so numerous that a fat cow has been sold for 4s. sterling. The rocks along the coasts are frequented by eagles, hawks, and all kinds of sea-fowl, whose eggs and young are taken in vast quantities by the natives. The rivers and lakes abound with trout, salmon, and eels; and the sea affords a very advantageous fishery. Various obelisks and ancient monuments appear in this district, and several Romish chapels are still standing. Caithness is well peopled with a race of hardy inhabitants, who employ themselves chiefly in fishing and breeding sheep and black cattle, and are remarkably industrious. This county sends out in some years about 20,000 head of black cattle, but in bad seasons the farmers kill and salt vast numbers for sale. Great numbers of swine are also reared. They are short, high-backed, long-bristled, sharp, slender, and long-nosed; have long erect ears, and a most ferocious look. Vast

sel, formed of the shell of a gourd, emptied and dried, serving to put divers kinds of goods in, as pitch, resin, and the like. The Indians, both of the North and South Sea, put the pearls they have fished in calabashes, and the negroes on the coast of Africa do the same with their gold-dust. The smaller calabashes are also frequently used by these people as a measure, by which they sell these precious commodities to the Europeans. The same vessels likewise serve to hold liquors, and answer as cups, and bottles, for soldiers and pilgrims.

Calabash Tree. See Melastoma.

Calabash Tree, African. See Adansonia.

CALABOZO, a town in the province of Venezuela, South America, founded in the early part of the last century by a commercial company of Guipuscoa. It is situated between the Guarico to the west, and the Orituco to the east; but nearer the former than the latter. The streets and houses have an agreeable aspect, and it has a neat church. The fine pasturage of the adjacent country rears numerous herds of cattle. The town is subject to occasional inundations from the mighty streams adjacent, and the climate is very hot, though tempered by the north-east breezes. There are five dependent villages or missions, containing altogether 98,000 head of cattle. The town itself has about 6000 inhabitants, and is 156 miles south of Caraccas.

CALABRIA, a country of Italy, in the kingdom of Naples, which was almost entirely desolated by the earthquakes of 1783. The reiterated shocks extended from Cape Spartivento to Amantea, above the gulf of St. Eufemia, and also affected that part of Sicily which lies opposite to the southern extremity of Italy. Those of the 5th and 7th of February and the 28th of March were the most violent, and completed the destruction of every building throughout the above-mentioned space. Not one stone was left upon another, south of the narrow isthmus of Squillace; and a very large proportion of the inhabitants were killed by the falling of their houses, near 40,000 lives being lost. Some were dug out alive, after remaining a surprising length of time buried among the rubbish. Messina became a mass of ruins; its beautiful palazzata was thrown in upon the town, and its quay cracked into ditches full of water; Reggio was almost destroyed; Tropea greatly damaged; and every other place in the province levelled to the ground. Before and during the concussion the clouds gathered, and then hung immovable and heavy over the earth. At Palmi the atmosphere had so fiery an aspect, that many people thought part of the town was burning. It was afterwards remembered, that an unusual heat had affected the skins of several persons just before the shock; the rivers assumed a muddy ash-colored tinge, and a sulphureous smell was almost general. A frigate passing between Calabria and Lipari felt so severe a shock, that the steersman was thrown from the helm, and the cannons were raised up to their carriages, while all around the sea exhaled a strong smell of brimstone. Stupendous alterations were occasioned in the face of the country; rivers choked up by the falling in of the hills, were converted into lakes, which if not speedily drained by some convulsion, or opened by human labor, would have stagnated and filled the air with pestilential vapors, and destroyed the remnants of population. Whole acres of ground, with houses and trees upon them, were broken off from the plains, and washed many furlongs down the deep hollows which the course of the rivers had worn; there, to the astonishment and terror of beholders, they found a new foundation to fix upon, either in an upright or an inclining position. In short, every species of phenomenon, incident to these destructive commotions of the earth, was to be seen in its utmost extent and variety in this ruined country. Their Sicilian majesties, with the utmost expedition, despatched vessels loaded with every thing that could be thought of on the occasion for the relief and accommodation of the distressed Calabrians; a general officer went from Naples with engineers and troops to direct the operations of the persons employed in clearing away and rebuilding the houses, and to defend the property of all the sufferers. The king ordered this officer to take all the money the royal treasures could supply or borrow; for, rather than it should be wanting on this pressing call, he was determined to part with his plate, nay, the very furniture of his palace. A messenger sent off from a town near Reggio on the 8th of February, travelled four days without shelter, and without being able to procure a morsel of bread. To add to all their other sufferings, the Calabrians found themselves and the miserable wreck of their fortunes exposed to the depredations of robbers and pirates; and to this accumulated distress succeeded a most inclement season, which obstructed every effort made to alleviate it; almost daily earthquakes kept the inhabitants in continual dread, not of being destroyed by the fall of houses, for none were left, but of being swallowed up by the splitting of the earth, or buried in the waves by some sudden inundation. See Earthquake. Calabria is divided into Ulterior and Citerior.

Calabria Citerior, or Citra, i. e. Hither Calabria, is one of the twelve provinces of Naples; and is bounded on the south by Calabria Ulterior, on the north by Basilicata, and on the west and east by the sea. Cosenza is the capital.

Calabria Ulterior, or Ultra, i. e. Farther Calabria, is washed by the Mediterranean Sea on the east, south, and west, and bounded by Calabria Citra on the north. Reggio is the capital.

CALACINE, or Callachene, in ancient geography, an extensive district of Assyria, north-east of the Tigris, and south of the Gordian mountains of Armenia.

CALADE, in the menage, the sloping declivity of a menage ground, upon which we ride down a horse several times, putting him to a short gallop, with his fore hams in the air, to learn him to ply or bend his haunches, and form his stop upon the aids of the calves of the legs, the stay of the bridle, and the caveson seasonably given.

CALAGUALÆ Radix, in the materia medica,

e hills, were converted into lakes, which if not
eedily drained by some convulsion, or opened
human labor, would have stagnated and filled
e air with pestilential vapors, and destroyed the
nnants of population. Whole acres of ground,
th houses and trees upon them, were broken
from the plains, and washed many furlongs
wn the deep hollows which the course of the
ers had worn; there, to the astonishment and
ror of beholders, they found a new foundation
fix upon, either in an upright or an inclining
sition. In short, every species of phenomenon,
ident to these destructive commotions of the
th, was to be seen in its utmost extent and
iety in this ruined country. Their Sicilian
jesties, with the utmost expedition, despatched
sels loaded with every thing that could be
ught of on the occasion for the relief and
ommodation of the distressed Calabrians; a
eral officer went from Naples with engineers
troops to direct the operations of the persons
ployed in clearing away and rebuilding the
ses, and to defend the property of all the
ers. The king ordered this officer to take
the money the royal treasures could supply
orrow; for, rather than it should be wanting
this pressing call, he was determined to part
his plate, nay, the very furniture of his
ace. A messenger sent off from a town near
gio on the 8th of February, travelled four
s without shelter, and without being able to
ure a morsel of bread. To add to all their
r sufferings, the Calabrians found themselves
the miserable wreck of their fortunes ex-
d to the depredations of robbers and pirates;
to this accumulated distress succeeded a
t inclement season, which obstructed every
t made to alleviate it; almost daily earth-
kes kept the inhabitants in continual dread,
of being destroyed by the fall of houses,
one were left, but of being swallowed up
e splitting of the earth, or buried in the
s by some sudden inundation. See Earth-
ce. Calabria is divided into Ulterior and
ior.

labria Citerior, or Citra, i. e. Hither
abria, is one of the twelve provinces of
es; and is bounded on the south by Cala-
Ulterior, on the north by Basilicata, and on
west and east by the sea. Cosenza is the
al.

labria Ulterior, or Ultra, i. e. Farther
bria, is washed by the Mediterranean Sea
e east, south, and west, and bounded by
ria Citra on the north. Reggio is the ca-

LACINE, or Callachene, in ancient
aphy, an extensive district of Assyria, north-
of the Tigris, and south of the Gordian
tains of Armenia.

LADE, in the menage, the sloping de-
of a menage ground, upon which we ride
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LAGUALÆ Radix, in the materia medica,

the root so called is knotty, and somewhat like that of the polypody tribe. It has been exhibited internally at Rome, with success, in dropsy; and it is said to be efficacious in pleurisy, contusions, and abscesses.

CALAHORRA, an episcopal town of Spain, in Old Castile, seated on a fertile soil, on the side of a hill which extends to the banks of the river Ebro. It is sixty-miles north-west of Saragossa.

CALAIS, a sea-port town of France, the chief town of a district in the department of the Pas de Calais, the seat of a prefecture of police, and of a tribunal of commerce. It is situated on marshy ground, which, by means of sluices, may be overflowed at pleasure, and is nearly surrounded by a moat and a wall, which is used as a public promenade. Calais is defended by a citadel on the north-west side, near the sea, nearly as large as the town. Fort Nieulay, an oblong square, was built in 1680, is supported by piles, and connected with this citadel by a mole. The harbour is not large, and is much obstructed with sand, even common merchantmen can only come in at high water. It consists of a large quay, terminated by two long wooden piers. A century ago it is said to have been capable of admitting vessels of 300 or 400 tons, but it has now only three fathoms at high water. Proposals have repeatedly been made to improve and deepen the harbour; but these have not as yet been listened to, though the expense would probably not exceed 1,500,000 livres. The country around is well cultivated, particularly between Calais and Gravelines, and houses environed with wood, rich meadows, and corn-fields, everywhere appear. The town is a parallelogram, having its long side towards the sea. The streets are wide and regular, well paved, and tolerably clean; and the houses are well built. The public buildings worth notice are the arsenal, built by Cardinal Richelieu, the churches and monasteries, a tolerably good theatre, and the hotel at the Lion D' Argent, which in fact is itself a small town. The principal manufactures are stockings and soap; and it possesses a very considerable coasting trade. It is also the great mart for the salt and gin of Holland; and the fishing of cod, herrings, and mackerel, is carried on to a great extent. Two fairs are held annually here; one on the 10th January, which continues for ten days; and another on the 11th July, for nine days; the principal articles of traffic are cattle, jewellery goods, iron and copper ware. This trade is much facilitated by the canals which communicate with Gravelines, Ardres, St. Omer, Dunkirk, and several other places in the north of France. Regular packet-boats, in the time of peace, sail twice a week or oftener, with the mail between Calais and Dover. The inhabitants derive a considerable part of their support from the intercourse with England.

In the twelfth century, the town was nothing more than a village belonging to the counts of Boulogne, but was afterwards so well fortified, that Edward III. in 1346, after the battle of Cressy, could only reduce it by famine. It continued in the possession of England till 1558, when it was taken by surprise by the duke of Guise. By the subsequent treaty of Chateau-Cambresis, it was stipulated that the French should retain it for eight years, at the expiration of which, queen Elizabeth sent troops to demand it; but the surrender was evaded on the ground that the English had violated the treaty by the bombardment of Havre-de-Grace. In 1596 it was taken by assault by the Spaniards, but restored to France at the peace of Vervins. It was bombarded in 1694 by the English, under Sir Cloudesly Shovel, but without much damage. Louis XVIII. landed here from his long exile on the 24th of April, 1814: a monument is erected on the spot to commemorate the event. Near the town also is a monument on the spot where Blanchard descended. Calais was not the scene of a single execution, it is said, during the French revolution. It is twenty miles north-east of Boulogne, twenty-five south-west of Dunkirk, fifty-five north of Abbeville, 170 north of Paris, and seventeen and a half south-east of Dover. Population 8500.

Calais (St.), is a small town of France, in the department of the Sarthe. Population 3646.

Calais is also the name of a township of the United States, in Caledonia county, Vermont, 105 miles north-east of Bennington.

Calais, in fabulous history, the twin brother of Zethes. They were said to have been the sons of Boreas and Orythyia, and to have had wings. They went on the voyage to Colchis with the Argonauts, delivered Phineus from the harpies, and were slain by Hercules.

Calais, Straits of, a department of France, bounded on the east by the department of the North; on the south by that of the Somme; on the west by the British Channel, and on the north by the straits of Dover. It is formed partly out of the ci-devant province of Artois, and partly from that of Picardy. Calais, St. Omer, Bethune, Hesdin, Arras, and Bapaume are its chief towns.

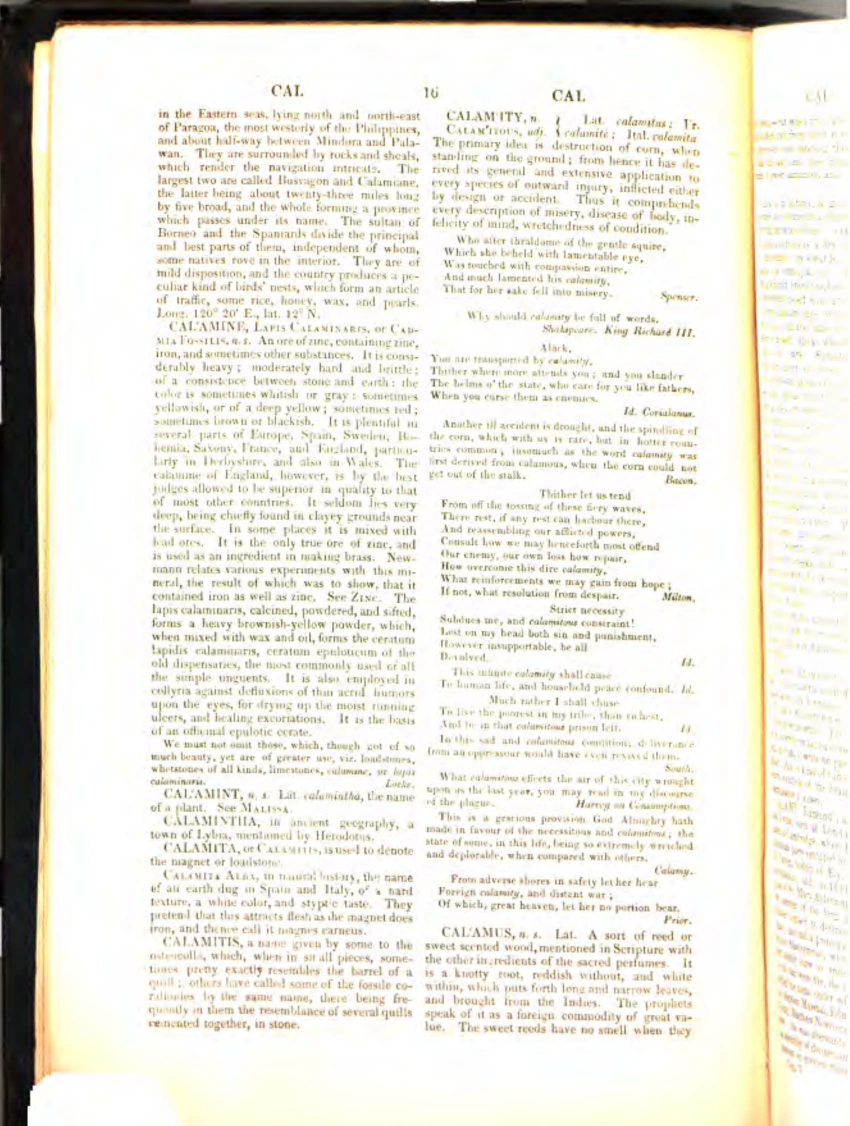
CALAMAN'CO. Lat. *caula monicha*, a sort of woollen stuff, so called from being used by monks. In the middle ages Dr. Johnson says it signified a hat. It is manufactured in England, Brabant, and Flanders, particularly at Lisle, Tournay, Antwerp, and a few other towns. It has a fine gloss; and is chequered in the warp, whence the cheques appear only on the right side. Some calamancoes are quite plain, others have broad stripes adorned with flowers, some with plain broad stripes, some with narrow stripes, and others watered.

> He was of a bulk and stature larger than ordinary, had a red coat, flung open to shew a *calamanco* waistcoat.
> *Tatler.*

CALAMATA, or Calameta, a considerable town of European Turkey, in the Morea, and province of Belvedera. It was taken by the Venetians in 1685; but the Turks retook it with all the Morea. It stands on the river Spinarza, eight miles from the sea, on the site of the ancient Sparta.

CALAMBA, or Calambac, in commerce, a kind of wood brought from China, usually sold under the denomination of agallochum, or aloes-wood.

CALAMIANES, a group of twelve islands



in the Eastern seas, lying north and north-east of Paragoa, the most westerly of the Philippines, and about half-way between Mindora and Palawan. They are surrounded by rocks and shoals, which render the navigation intricate. The largest two are called Bussagon and Calamiane, the latter being about twenty-three miles long by five broad, and the whole forming a province which passes under its name. The sultan of Borneo and the Spaniards divide the principal and best parts of them, independent of whom, some natives rove in the interior. They are of mild disposition, and the country produces a peculiar kind of birds' nests, which form an article of traffic, some rice, honey, wax, and pearls. Long. 120° 20' E., lat. 12° N.

CAL'AMINE, Lapis Calaminaris, or Cadmia Fossilis, *n. s.* An ore of zinc, containing zinc, iron, and sometimes other substances. It is considerably heavy; moderately hard and brittle; of a consistence between stone and earth: the color is sometimes whitish or gray: sometimes yellowish, or of a deep yellow; sometimes red; sometimes brown or blackish. It is plentiful in several parts of Europe, Spain, Sweden, Bohemia, Saxony, France, and England, particularly in Derbyshire, and also in Wales. The calamine of England, however, is by the best judges allowed to be superior in quality to that of most other countries. It seldom lies very deep, being chiefly found in clayey grounds near the surface. In some places it is mixed with lead ores. It is the only true ore of zinc, and is used as an ingredient in making brass. Newmann relates various experiments with this mineral, the result of which was to show, that it contained iron as well as zinc. See Zinc. The lapis calaminaris, calcined, powdered, and sifted, forms a heavy brownish-yellow powder, which, when mixed with wax and oil, forms the ceratum lapidis calaminaris, ceratum epuloticum of the old dispensaries, the most commonly used of all the simple unguents. It is also employed in collyria against defluxions of thin acrid humors upon the eyes, for drying up the moist running ulcers, and healing excoriations. It is the basis of an officinal epulotic cerate.

We must not omit those, which, though not of so much beauty, yet are of greater use, viz. loadstones, whetstones of all kinds, limestones, *calamine, or lapis calaminaris.* *Locke.*

CAL'AMINT, *n. s.* Lat. *calamintha*, the name of a plant. See Malissa.

CALAMINTHA, in ancient geography, a town of Lybia, mentioned by Herodotus.

CALAMITA, or Calamitis, is used to denote the magnet or loadstone.

Calamita Alba, in natural history, the name of an earth dug in Spain and Italy, of a hard texture, a white color, and styptic taste. They pretend that this attracts flesh as the magnet does iron, and thence call it magnes carneus.

CALAMITIS, a name given by some to the osteocolla, which, when in small pieces, sometimes pretty exactly resembles the barrel of a quill; others have called some of the fossile coralloides by the same name, there being frequently in them the resemblance of several quills cemented together, in stone.

CALAM'ITY, *n.* } Lat. *calamitas*; Fr.
Calam'itous, *adj.* } *calamité*; Ital. *calamita*.
The primary idea is destruction of corn, when standing on the ground; from hence it has derived its general and extensive application to every species of outward injury, inflicted either by design or accident. Thus it comprehends every description of misery, disease of body, infelicity of mind, wretchedness of condition.

> Who after thraldome of the gentle squire,
> Which she beheld with lamentable eye,
> Was touched with compassion entire,
> And much lamented his *calamity*,
> That for her sake fell into misery. *Spenser.*
>
> Why should *calamity* be full of words.
> *Shakspeare. King Richard III.*
>
> Alack,
> You are transported by *calamity*.
> Thither where more attends you; and you slander
> The helms o' the state, who care for you like fathers,
> When you curse them as enemies.
> *Id. Coriolanus.*

Another ill accident is drought, and the spindling of the corn, which with us is rare, but in hotter countries common; insomuch as the word *calamity* was first derived from calamous, when the corn could not get out of the stalk. *Bacon.*

> Thither let us tend
> From off the tossing of these fiery waves,
> There rest, if any rest can harbour there,
> And reassembling our afflicted powers,
> Consult how we may henceforth most offend
> Our enemy, our own loss how repair,
> How overcome this dire *calamity*,
> What reinforcements we may gain from hope;
> If not, what resolution from despair. *Milton.*
>
> Strict necessity
> Subdues me, and *calamitous* constraint!
> Lest on my head both sin and punishment,
> However insupportable, be all
> Devolved. *Id.*
>
> This infinite *calamity* shall cause
> To human life, and household peace confound. *Id.*
>
> Much rather I shall chuse
> To live the poorest in my tribe, than richest,
> And be in that *calamitous* prison left. *Id.*

In this sad and *calamitous* condition, deliverance from an oppressour would have even revived them. *South.*

What *calamitous* effects the air of this city wrought upon us the last year, you may read in my discourse of the plague. *Harvey on Consumptions.*

This is a gracious provision God Almighty hath made in favour of the necessitous and *calamitous*; the state of some, in this life, being so extremely wretched and deplorable, when compared with others. *Calamy.*

> From adverse shores in safety let her hear
> Foreign *calamity*, and distant war;
> Of which, great heaven, let her no portion bear.
> *Prior.*

CAL'AMUS, *n. s.* Lat. A sort of reed or sweet scented wood, mentioned in Scripture with the other ingredients of the sacred perfumes. It is a knotty root, reddish without, and white within, which puts forth long and narrow leaves, and brought from the Indies. The prophets speak of it as a foreign commodity of great value. The sweet reeds have no smell when they are green,—but when they are dry only. Their form differs not from other reeds, and their smell is perceived upon entering the marshes.

Take thou also unto thee principal spices of pure myrrh, of sweet cinnamon, and of sweet *calamus*.
Exodus, xxx. 23.

Calamus, in botany, a genus of the monogynia order, and hexandria class of plants: natural order fifth, tripetaloideæ: cal. is hexaphyllous: cor. none, the fruit is a dry monospermous berry, imbricated backwards. There are nine species, the principal one is, C. rotang. The stem is without branches, has a crown at top, and is everywhere beset with straight spines. This is the true Indian cane, which is not visible on the outside; but the bark being taken off discovers the smooth stick, which has no marks of spine on the bark. Sumatra is said to be the place where most of these sticks grow. Such are to be chosen as are of proper growth between two joints, suitable to the fashionable length of canes as they are worn; but such are scarce. The calamus rotang is one of the plants from which the drug called dragon's blood is obtained. The petrocarpus draco and dracæna draco, also afford this resin. It is generally much adulterated, and varies in goodness and purity. The best kind is of a dark red color, which, when powdered, changes to crimson: it is soluble in alcohol, but not in water. It readily melts and catches flame: has no smell, but discovers some degree of warmth and pungency to the taste. The ancient Greeks were acquainted with the astringent power of this drug, in which character it was formerly much employed in hæmorrhages and alvine fluxes.

Calamus, in the ancient poets, denotes a simple kind of pipe, the musical instrument of the shepherds, usually made either of an oaten stalk or a reed.

Calamus, Aromaticus, or sweet-scented flag, in the materia medica, a species of flag called acorus by Linnæus.

Calamus Scriptorius, in antiquity, a reed or rush to write with. The ancients made use of styles to write on tables covered with wax, and of reed, or rush, to write on parchment, or Egyptian paper. Also, a kind of canal at the bottom of the fourth ventricle of the brain, so called from its resemblance to a pen.

CALAMY (Edmund), an eminent presbyterian divine, born at London in 1600, and educated at Cambridge, where his attachment to the Arminian party excluded him from a fellowship. Dr. Felton, bishop of Ely, however, made him his chaplain; and, in 1639, he was chosen minister of St. Mary Aldermary, in London. Upon the opening of the long parliament, he distinguished himself in defence of the Presbyterian cause; and had a principal hand in writing the famous Smectymnus, which he says, gave the first deadly blow to episcopacy. The authors of this tract were five, the initials of those names formed the name under which it was published, viz. Stephen Marshal, Edmund Calamy, Thomas Young, Matthew Newcomen, and William Spurstow. He was afterwards an active member in the assembly of divines, and used his utmost endeavours to prevent those violences committed after the king was brought from the Isle of Wight. In Cromwell's time he lived privately, but was assiduous in promoting the king's return; for which he was afterwards offered a bishopric, but refused it. He was ejected for nonconformity in 1662; and died of grief at the sight of the great fire of London in 1666.

Calamy (Edmund), grandson of the preceding, by his eldest son Mr. Edmund Calamy, who was ejected out of the living of Moxton in Essex on St. Bartholomew's day, 1662. He was born in London, April 5th, 1671. After having learned the languages, and gone through a course of natural philosophy and logic, at a private academy in England, he studied philosophy and civil law, at the university of Utrecht, and attended the lectures of the learned Grævius. While he resided there, an offer of a professor's chair in the university of Edinburgh was made him by principal Carstairs, sent over on purpose to find a person properly qualified for the office. This he declined, and returned to England in 1691, bringing with him letters from Grævius to professors Pocock and Bernard, who obtained leave for him to prosecute his studies in the Bodleian library. He entered into an examination of the controversy between the conformists and the nonconformists; which determined him to join the latter; and coming to London, in 1692, he was chosen assistant to Mr. Matthew Sylvester, at Blackfriars; and in 1674 ordained at Mr. Annesly's meeting-house. In 1702 he was chosen one of the lecturers in Salter's-hall; and in 1703 succeeded Mr. Vincent Alsop in Westminster. He drew up the table of contents to Mr. Baxter's History of his Life and Times, which was sent to the press in 1696; and added to it an Index. He next composed an abridgment of it, with an Account of many other Ministers who were ejected after the Restoration; Their Apology containing the grounds of their nonconformity; and a Continuation of their History till 1691. This work was published in 1702. He afterward published a Defence of Nonconformity, in tracts in answer to Dr. Hoadley. In 1709 he made a tour to Scotland; and had the degree of D. D. conferred on him by the universities of Edinburgh, Aberdeen, and Glasgow. In 1713 he published a second edition of his Abridgement of Baxter's History, in which, among other additions, there is a continuation of the history through King William's reign, and Queen Anne's, down to the passing of the Occasional Bill; and in the close is subjoined the reformed liturgy, which was drawn up and presented to the bishops in 1661. In 1718 he wrote a Vindication of his grandfather and others, against certain reflections cast upon them by Mr. Echard in his History of England; and in 1728 appeared the Continuation of the Account of the Ministers, Lecturers, Masters, Fellows of Colleges, and Schoolmasters, who were ejected after the Restoration. He died June 3rd, 1732, greatly regretted both by the dissenters and members of the established church, with many of whom he lived in great intimacy. Besides the pieces already mentioned, he published many sermons. He was twice married and had thirteen children.

CALANDRE, a name given by the French writers to an insect that does vast mischief in granaries. It is properly of the scarabæus or beetle class; it has two antennæ formed of many round joints, and covered with a soft and short down; from the anterior part of the head there is thrust out a trunk, which is so formed at the end, that the creature easily makes way with it through the coat or skin that covers the grain, and gets at the meal or farina on which it feeds; the inside of the grain is also the place where the females deposit their eggs, that the young progeny may be born with provision about them. When the the female has pierced a grain of corn for this purpose, she deposites in it one egg, or at the utmost two, but she most frequently lays them single; these eggs hatch into small worms, which are usually found with their bodies rolled up in a spiral form, and after eating till they arrive at their full growth, they are changed into chrysales, and from these, in about a fortnight, comes out the perfect calandre. The female lays a considerable number of eggs; and the increase of these creatures would be very great; but while in the egg state, and even while in that of the worm, they are subject to be eaten by mites; these little vermin are always very plentiful in granaries, and they destroy the far greater number of the larger animals.

CALAPIA, in entomology, an American species of cancer, having a crenulated thorax, with the posterior angles dilated, hand-claws crested.

CALAS (John), an unfortunate protestant merchant at Toulouse, inhumanly butchered under form of law, to gratify the sanguinary impulse of ignorant Popish zeal. He had lived forty years at Toulouse. His wife was an Englishwoman of French extraction, and they had five sons; one of whom, Lewis, had turned Catholic, through the persuasion of a Catholic maid who had lived thirty years in the family. In October, 1761, the family consisted of Calas, his wife, Mark Antony their son, Peter their second son, and this maid. Anthony was educated for the bar, but, being of melancholy turn, was continually dwelling on passages from authors on the subject of suicide, and one night in that month hanged himself on a bar laid across two folding doors in their shop. The crowd collected by the confusion of the family on so shocking a discovery, took it into their heads, that he had been strangled by the family to prevent his changing his religion, and that this was a common practice among Protestants. The officers of justice adopted the popular tale, and were supplied by the mob with what they accepted as evidences of the fact. The fraternity of White Penitents got the body, buried it with great ceremony, and performed a solemn service for him as a martyr; the Franciscans did the same: and after these formalities no one doubted the guilt of the devoted heretical family. They were all condemned to the torture, to bring them to confession; they appealed to the parliament; who, as weak and wicked as the subordinate magistrates, sentenced the father to the torture, ordinary and extraordinary, to be broken alive upon the wheel, and then to be burned to ashes; which decree, to the disgrace of humanity, was actually carried into execution. Peter Calas, the other son, was banished for life; and the rest were acquitted. The distracted widow found some friends, and among the rest M. Voltaire, who laid her case before the council of state at Versailles, and the parliament at Toulouse were ordered to transmit the proceedings. These the king and council unanimously agreed to annul; the capitoul, or chief magistrate of Toulouse, was degraded and fined; old Calas was declared to have been innocent; and every imputation of guilt was removed from the family, who also received from the king and clergy considerable gratuities.

CA'LASH, *n. s.* From Fr. *caleche*. It is a light kind of carriage, with very low wheels, open on all sides for the conveniency of the air and prospect, or at most enclosed with light mantles of cloth to be opened and shut at pleasure.

> Daniel, a sprightly swain, that used to slash
> The vigorous steeds that drew his lord's *calash*. *King*.

> The ancients used *calashes*, the figures of several of them being to be seen on ancient monuments. They are very simple, light, and drove by the traveller himself. *Arbuthnot on Coins*.

CALASIO (Marius), a Franciscan professor of Hebrew at Rome. He published there, in 1621, a concordance of the Bible, which consisted of 4 vols. folio. This valuable work, is in fact a complete lexicon of the Hebrew, with its various dependent dialects; for besides the Hebrew words in the Bible, which are in the body of the book with the Latin version over against them, there are in the margin the differences between the septuagint version and the vulgate; so that at one view may be seen wherein the three texts agree, and wherein they differ. Moreover at the beginning of every article there is a kind of dictionary, which gives the signification of each Hebrew word; and affords an opportunity of comparing it with the Syriac, Arabic, and Chaldee. A valuable edition of this work was published in London, 1747, edited by the Rev. W. Romaine, assisted by Rowe Mores, and Lutzena a Portuguese Jew.

CALASIRIS or CALASSIS, in antiquity, a linen tunic fringed at the bottom, and worn by the Egyptians under a white woollen garment: which last they pulled off when they entered the temples, being only allowed to appear there in linen.

CALATHUS, in antiquity, a kind of hand basket made of light wood or rushes; used by the women to gather flowers, but chiefly to put their work in. The figure of the calathus, as represented on ancient monuments, is narrow at the bottom, and widening upwards like that of a top. The Calathus or work basket of Minerva is no less celebrated among the poets than her distaff. It was also the name of a cup for wine used in sacrifices.

CALATOR, from καλαω, to call, in antiquity, a crier, appointed to publish any thing aloud, or call the people together.

CALATRAVA, a city of Spain in New Castile on the river Guadiana, forty-five miles south of Toledo.

CALATRAVA, KNIGHTS OF, a military order in Spain instituted under Sancho III. king of Cas-

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A, KNIGHTS of, a military order in
ted under Sancho III. king of Cas-

tile, upon the following occasion:—When that prince took the strong fort of Calatrava from the Moors of Andalusia, he gave it to the templars, who, not being able to defend it, returned it him again. Don Raymond, of the order of Cistercians, accompanied with several persons of quality, then made an offer to defend the place, which the king thereupon delivered to them, and instituted that order. It increased so much under the reign of Alphonsus, that the knights desired to have a grand master, which was granted. Ferdinand and Isabella afterwards, with the consent of pope Innocent VIII. re-united the grandmastership of Calatrava to the Spanish crown; so that the kings of Spain are now become perpetual administrators thereof. Their rules and habits were at first those of the Cistercians, but their present habit is a mantle of white silk, tied with a cordon and tassels, and on the left arm the cross of the order is embroidered. Their cross is a cross fleury *gules* as in the annexed figure, and is worn at the stomach, pendants to a red ribbon. It is styled the gallant order of Calatrava.

CALAURIA, in ancient geography, an island of Greece in the Saronic bay, over against the port of Troezen, at the distance of forty stadia. Hither Demosthenes went twice into banishment; and here he died. Neptune was said to have accepted this island from Apollo in exchange for Delos. The city of this name stood on a high ridge nearly in the middle of the island, commanding an extensive view of the gulph and its coasts. Here was the temple of Neptune; the priestess of which was a virgin, who was dismissed when marriageable. The Macedonians, when they had reduced Greece, were afraid to violate the sanctuary, by forcing from it the fugitives, his suppliants. Antipater commanded his general to bring away the orators, who had offended him, alive; but Demosthenes could not be prevailed on to surrender. His monument remained in the second century, within the enclosure of the temple. The city of Calauria has been long abandoned. Traces of buildings, and of ancient walls, appear nearly level with the ground; and some stones, in their places, each with a seat and back, forming a little circle, once perhaps a bath. The temple, which was of the Doric order, and not large, as may be inferred from the fragments, is reduced to an inconsiderable heap of ruins. The island is now called Poro.

C. ALBUM, in entomology, an European species of curculio, particularly distinguished by having an incurvated line on the wing-cases at the base, also the specific name of the common butterfly, a well known species of the European papiliones. This insect has angulated wings of a fulvous color, spotted with black: the posterior wings marked beneath with a white curved line resembling the letter C, whence its name.

CALCANEUM, calx, the heel, calcar pterna, os calcis. The largest bone of the tarsus, which forms the heel. See ANATOMY.

CALCANTHUM, red vitriol. See VITRIOL.

CALCAR, in glass-making, a small oven, or reverberatory furnace, in which the first calcination of sand and salt of potashes is made for the turning them into what is called frit. This furnace is made in the fashion of an oven ten feet long, seven broad in the widest part, and two deep. On one side of it is a trench six inches square, the upper part of which is level with the calcar, and separated only from it at the mouth by bricks nine inches wide. Into this trench they put sea coal, the flame of which is carried into every part of the furnace, and is reverberated from the roof upon the frit, over the surface of which the smoke flies, and goes out at the mouth of the calcar; the coals burn on iron grates, and the ashes fall through.

CALCAR (John de), a celebrated painter, was the disciple of Titian, and perfected himself by studying Raphael. Among other pieces he drew a nativity, representing the angels around the infant Jesus; and so ordered the disposition of his picture, that the light all proceeds from the child. He died at Naples, in 1546, in the flower of his age. He designed the anatomical figures of Vesalius, the portraits of the painters of Vasari.

CALCAR, in conchology, a species of Turbo, of which Chemnitz gives several distinct varieties from India, the South Seas, and the Mediterranean. Also a species of nautilus, found in the Adriatic, and described by Plancus among his miscroscopic shells.

CALCAR, in entomology, a small German species of curculio, of a black color, with single toothed thighs and testaceous antennæ and feet.

CALCARATA, in entomology, a small species of buprestis, with bidentated striated wing-cases, shanks of the middle legs toothed: body copper-colored: found on German trees.

CALCARATUS, a species of cerambyx, color violaceous-black, thighs rufous, the posterior ones dentated. Also a species of cimex, color fuscous, abdomen sanguineous above, the posterior thighs six-toothed. Both these inhabit Europe.

CALCAREOUS, in mineralogy, the third order of the class earths, according to Gmelin's system, consisting principally of carbonate of lime.

CALCAREOUS SPAR, crystallised carbonate of lime. It occurs crystallised in more than 600 different forms, all having for their primitive form an obtuse rhomboid. It occurs also in massive and imitative shapes.

The colors of calc-spar are gray, yellow, red and green, lustre vitreous: fracture foliated, with a threefold cleavage, translucent. It is less hard than fluor spar, and is easily broken; specific gravity, 2·7, 43·6, carbonic acid, and 56·4 lime. It effervesces powerfully with acids, and some varieties are phosphorescent on hot coals. It is found in veins in all rocks, from granite to alluvial strata. The rarest and most beautiful crystals are found in Derbyshire.

CALCA'RIOUS. Lat. *calx, calcis;* lime; *lapis coctus*, from χαλιξ, denoting a stone or fragments of stones, from which cement or mortar is made.—*Vossius.* Scheidius on the other hand, by mutations of κλαω, *frango*, obtains κλαξ, whence καλξ.

On the east side, in the most broken part of the

precipices, is a stratum of bones of all sizes, belonging to various animals and fowls, enchased in an incrustation of a reddish *calcareous* rock. *Swinburne.*

CALCEARIUM, in antiquity, a largess bestowed on Roman soldiers for buying shoes. In monasteries, calcearium denoted the daily service of cleaning the shoes of the religious.

CALCEATED, *adj.* Lat. *calceatus*; shod; fitted with shoes.

CALCEDON. See CHALCEDON.

CALCEDONIANS, a denomination given by Coptic writers to the Melchites, on account of their adherence to the council of Calcedon.

CALCEDONIUS, *n. s.* Lat. the calcedony. A kind of precious stone. See CHALCEDONY.

Calcedonius is of the agate kind, and of a misty grey, clouded with blue, or with purple.

Woodward on Fossils.

CALCEOLARIA, from calceolus, a slipper, Slipper-wort; a genus of plants, class, diandria; order, monogynia: CAL. one-leaved perianth: COR. monopetalous: STAM. two filaments, incumbent anthers: PIST. a roundish germ: with very short style; and blunt stigma: PER. capsule subconic; seeds numerous. Nine species; almost all natives of Peru; generally with yellow clustering flowers, some of which are beautiful and well worth cultivating.

CALCHAS, in fabulous history, a famous diviner, who followed the Greek army to Troy. He foretold that the siege would last ten years; and that the fleet, which was detained in the port of Aulis by contrary winds, would not sail till Agamemnon's daughter had been sacrificed to Diana. He had received the power of divination from Apollo. Calchas was informed, that as soon as he found a man more skilled than himself in divination, he must perish; and this happened near Colophon, after the Trojan war. He was unable to tell how many figs were in the branches of a certain fig-tree; and when Mopsus mentioned the exact number, Calchas died through grief.

CALCHOPHONOS LAPIS, among the ancients, a name given to a stone of a black color, and considerable hardness, which, when cut into thin plates, and struck against by any other hard body, gave a sound like that of brass: it seems to have been one of the hard black marbles.

CALCIFRAGUS, stone-breaking, an appellation given by some to the scolopendrium, by others to pimpernel, on account of their lithrontriptic quality.

CALCIMURITE, in mineralogy, a species of earth, or stone, of the consistency of clay, found near Thonville. Its color is blue or olive green, and it contains magnesia, mixed with a considerable portion of calcareous earth, and some iron. The olive green colored, contains no argil. The blue is used by potters.

CALCINATION. The fixed residences of such matters as have undergone combustion, says Dr. Ure, are called cinders in common language, and calces, or now more commonly oxides, by chemists; and the operation, when considered with regard to these residues, is termed *calcination*. In this general way it has likewise been applied to bodies, not really combustible, but only deprived of some of their principles by heat. Thus we hear of the calcination of chalk, to convert it into lime, by driving off its carbonic acid and water; of gypsum or plaster stone, of alum, of borax, and other saline bodies, by which they are deprived of their water of crystallisation; of bones, which lose their volatile parts by this treatment; and of various other bodies. See CHEMISTRY. For the ancient definition, see the next article.

CALCINE', *v.*
CALX', *n.*
CAL'CINATE, *v.*
CALCINA'TION,
CAL'CINABLE.

See CALCARIOUS. To reduce to a calx. Calcination is thus described by Junius, as quoted by Dr. Johnson:—Such a management of bodies by fire as renders them reducible to powder; wherefore it is called chemical pulverisation. This is the next degree of the power of fire beyond that of fusion; for when fusion is longer continued, not only the more subtile particles of the body itself fly off, but the particles of fire likewise insinuate themselves in such multitudes, and are so blended through its whole substance, that the fluidity, first caused by the fire, can no longer subsist. From this union arises a third kind of body, which, being very porous and brittle, is easily reduced to powder; for, the fire having penetrated everywhere into the pores of the body, the particles are both hindered from mutual contact, and divided into minute atoms.

Our lampes brenning bothe night and day,
To bring about our craft, if that we may;
Our furneis eke of *calcination*,
And of waters albification.
Unslekked lime and gleire of an ey.

Chaucer's Canterbury Tales.

Gold, that is more dense than lead, resists peremptorily all the dividing power of fire; and will not be reduced into a *calx*, or lime, by such operations as reduce lead into it. *Digby.*

Divers residences of bodies are thrown away, as soon as the distillation or *calcination* of the body that yieldeth them is ended. *Boyle.*

This may be effected, but not without *calcination*, or reducing it by art into a subtile powder.

Browne's Vulgar Errours.

Fiery disputes that union have *calcined*,
Almost as many minds as men we find. *Denham.*

This chrystal is a pellucid fissile stone, clear as water, and without colour, enduring a red heat, without losing its transparency, and, in a very strong heat, *calcining* with fusion. *Newton's Opticks.*

The solids seem to be earth, bound together with some oil; for if a bone be *calcined*, so as the least force will crumble it, being immersed in oil, it will grow firm again. *Arbuthnot on Aliments.*

In hardening, by baking without melting, the heat hath three degrees; first, it indurateth, then maketh fragile, and lastly it doth *calcinate*.

Bacon's Nat. Hist.

'The earth that drinketh in the rain that cometh oft upon it,' is but a faint emblem of a *calcined* mind.

Expos. N. T. Heb. vi.

CALCIS LIQUOR, solution of lime formerly called aqua calcis. Take one pound of lime, and boiling water, three gallons; pour the water on the lime, let it stand for some time, and then pour it into stopped glass bottles together with the lime that remains. It is exhibited internally in cardialgia, spasms, diarrhœa, in doses of two and three ounces, &c.; and in proportionate doses in convulsions of children arising from acidity or

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(calcolo); Ital. cal-
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Calculi, were
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Nother his collect ne his expans yeres,
Nother his rote, ne his other geres,
As ben his centris, and his argumentes,
For his equations in every thing;
And by his eighte speres in his werking,
He knew ful wel how fer Alnath was shove
Fro the hed of thilke fix Aries above,
That in the ninthe spere considered is;
Ful sotilly he calculed all this.

Chaucer. Frankeleines Tale.

The general calculation, which was made after the last perambulation, exceeded eight millions.

Howel's Vocal Forest.

Cypher, that great friend to calculation, or rather which changeth computation into easy computation.

Holder on Time.

But if you would consider the true cause
Why all these fires, why all these gliding ghosts,
Why birds and beasts, from quality and kind,
Why old men, fools, and children calculate;
Why all these things change, from their ordinance,
Their natures and preformed faculties,
To monstrous quality; why you shall find,
That heaven hath infused them with these spirits,
To make them instruments of fear and warning,
Unto some monstrous state.

Shakespeare.

If they then [illegible] calculate, yet so they do not.

Hooker.

Being different from calculations of the ancients, their observations confirm not ours.

Brown's Vulgar Errours.

The whole body of the clergy and their families, make near 100,000 souls, that is about an eightieth part of the nation. And reckoning the population of England and Wales at eight millions of people, every clergyman would have a congregation of four hundred and forty-four persons to attend on, in the same way of instruction.

Simpson's Plea for Religion.

CALCULOSE, *adj.* } From Lat. *calculus.*
CALCULOUS. } Stony; gritty.

The calculous salt of some well regulated spirit[illegible] stones, and thus, perhaps, the stones, or concretions in the kidney or bladder, may be generated.

Brown's Vulgar Errours.

I have found, by opening the kidneys of a calculous person, that the stone is formed sooner than I have suspected.

Sharp.

CALCULUS, in antiquity, a little stone, or pebble, was used in making computations, in [illegible] suffrages, playing at tables, and the like. In after times, pieces of ivory, and counters of silver, gold, &c. were used in lieu of pebbles, still retaining the old name. The Roman judges ordinarily gave their opinions by calculi, which were white for absolution and black for condemnation. Hence calculus albus, in our old writers, denotes a favourable vote, or sentence, or a person to be absolved and acquitted; a [illegible] to some day of great good fortune; [illegible] the contrary. This custom is said to have been borrowed from the Thracians, who marked their happy or prosperous days by white, and their unfortunate by black, pebbles put every night into an urn. Besides the difference of color, there were some calculi also which had characters engraven on them, as those which were in use in taking the suffrages in assemblies and at assemblies of the people. These calculi were made of thin wood, polished, and covered over with wax. Their form is still seen in some medals of the Cassian family; and the manner of casting them into the urns, in the medals of the Licinian family. These calculi were marked with the letters A for absolvo, i. e. I acquit; C for condemno, I condemn; N L, non liquet, i. e. it is not clear, must be further examined and additional information given. Calculi lusorii were the chess-men, or little balls, which were employed in the game of chess, which the poets allude to, both as to their matter, their color, and their use. They were made either of ivory, of old, silver, or glass.

Calculus, in chemistry, this word, physiologically and medically applied, designates those concretions of a morbid kind which are found in the viscera and cavities of animal bodies, as the kidneys and urinary bladder, the liver, gall-bladder, and ducts; and occasionally in the intestinal canal; to these last, however, the term concretion, rather than calculus, is more usually applied, and under that word we shall notice them, confining our account in the present article to urinary and biliary calculi.

Of urinary calculi.—These are found at different times in the kidneys, the ureters, the urinary bladder, the urethra, and the prostate gland. They are for the most part made up of those materials, disproportionately combined, which always exist in other proportions in the urine itself. To this law, however, there are occasional exceptions. One of the principal ingredients in urine, as will be seen by turning to the articles Chemistry and Urine, is uric acid, and accordingly we find the largest proportion of the concretions now to be noticed to contain uric acid as a master principle; indeed Majendie, who has published a small treatise especially on the subject of urinary calculi, seems to think that, neither in a pathological nor practical point of view, is it of much importance to take cognizance of any other; in this opinion he is however manifestly erroneous; for although the uric acid calculus is, as above intimated, of by far the most frequent occurrence, we very often meet with others which are exceedingly different in chemical composition, and for the counteraction of which a different medicinal process is demanded. See Medicine. It ought always to be recollected that there are very few instances in which the substances that give the character to calculi are found singly. When we talk of uric acid calculus, and especially of the other concretions, we mean merely that the name by which they are designated expresses the predominance of the principle.

Urinary calculi may be classed under the several following heads.

1. Uric or lithic acid calculi, which are formed mainly of uric acid.
2. Urate of ammonia calculi.
3. Ammoniaco-magnesian phosphate, or, as they are called, triple calculi.
4. Calculi of phosphate of lime.
5. Calculi of oxalate of lime (mulberry calculusi).
6. Calculi of the carbonate of lime.
7. Calculi of cystic oxide.

Uric acid calculus.—This, as above stated, is much more frequent in its occurrence than any other. Some have averaged their number at about half of the whole number of concretions that are found. Calculi of this kind are of various sizes, from that of a common nut to that of a large egg. They more resemble the common hard compact stones that are found in the roads, than do the other calculi; their shape is for the most part oval; they have an internal central nucleus from which rays proceed. Their color is for the most part of a yellowish brown or fawn.

When treated with the blow-pipe this calculus blackens and gives out an ammoniacal odor. It is soluble in pure alkalies.

The red sand so commonly voided in gravelly complaints consists almost entirely of uric acid.

The urate of ammonia calculus is in its pure state by no means common, but this composition is often found in cases where the uric acid is in excess, and in this way a mixed calculus is formed. This calculus is of a clayish color, and it is more earthy in its fracture than the uric acid concretion; it is also much more soluble in water, and a distinguishing property of it, from the mere uric acid calculus, is its solubility in the alkaline sub-carbonates, while the latter requires the alkali to be pure to dissolve it.

The ammoniaco-magnesian phosphate is scarcely ever found unmixed; its most usual combination is with the species next to be described, viz. the phosphate of lime, and the union constitutes the *fusible calculus* of Wollaston, so named because it is susceptible of being melted or fused into a vitreous matter by the blow-pipe.

The ammoniaco-magnesian phosphate is white, or of a pale gray; its texture is much softer than that of the uric acid calculus. This species frequently attains a very large size. When voided in the form of gravel it is white.

This calculus is soluble in acids, and not in pure alkalies.

The phosphate of lime calculus is of a pale brown or gray color, and smooth on its external surface. It is made up of laminæ that are easily separated. This, like the triple calculus, is easily soluble in the mineral acids, especially the muriatic. It requires an intense and long continued heat from the blow-pipe to fuse it. The calculi that are found in the prostate gland are of this species.

Oxalate of lime, or mulberry calculus, is much darker in its color than the other varieties. Its external surface is marked by projecting tubercles giving with its color something of a mulberry appearance. Sometimes it is smooth and paler externally; in this case it is also in smaller masses, and has been compared to a hemp-seed. This kind of calculus (the mulberry) is exceedingly hard.

Muriatic and nitric acids, if concentrated and heated, dissolve this species of calculus; but it is necessary for easy solution that the concretion be first powdered. Pure alkalies do not act upon it, but the alkaline carbonates, when digested with it, separate the oxalic acid from it which is replaced by the carbonic acid.

The carbonate of lime calculus is exceedingly rare Mr. Brande tells us that among several

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hundred calculi from the human bladder, which he examined, he never met with a single instance of it.

Cystic oxide calculus is so named from its being composed of a peculiar animal substance which has the chemical habitudes of an oxide, and from Dr. Wollaston, the discoverer of it, having at first supposed it to be confined to the bladder: this calculus more nearly resembles the ammoniaco-magnesian phosphate in its external appearance than any other, but it is more compact and less laminated.

This calculus is soluble both in acids and alkalies. The acetic, tartaric, and citric acids do not however act upon it freely, neither does alcohol, nor water, nor the carbonate of ammonia.

A xanthic oxide calculus, and a *fibrinous calculus*, have been described by Dr. Marcet as differing from every other known species. The first is of a reddish color, not so readily soluble in acids as in alkalies; its solution in nitric acid when evaporated giving a yellow color (whence the name); it is considerably more soluble in water than uric acid calculus, and less easily soluble in acids than the cystic oxide. The other calculus seemed similar in its properties to fibrine, and hence Dr. Marcet proposed that, in the event of other instances of the same kind being found, the name fibrinous should be given to it

The following is an outline of the classification proposed by Fourcroy and Vauquelen after the analysis of more than 600 of these concretions. We copy the table from the last edition of Dr. Henry's Elements of Chemistry.

Genus I.—*Calculi composed chiefly of one ingredient.*

Species 1. Calculus of uric acid.
2. Calculus of urate of ammmonia.
3. Calculus of carbonate of lime.
4. Calculus of oxalate of lime.

Genus II.—*Calculi composed of two ingredients.*

Species 1. Calculus of uric acid and earthy phosphates in distinct layers.
2. Calculus of uric acid and earthy phosphates intimately mixed.
3. Calculus of urate of ammonia and the phosphates in layers.
4. Calculus of the same ingredients intimately mixed.
5. Calculus of earthy phosphates mixed, or else in fine layers.
6. Calculus of oxalate of lime and uric acid in distinct layers.
7. Calculus of oxalate of lime and earthy phosphates in layers.

Genus III.—*Calculi composed of three or four ingredients.*

Species 1, Calculus of uric acid or urate of ammonia, earthy phosphates, and oxalate of lime.
2. Calculus of uric acid, urate of ammonia, earthy phosphates and silex.

The urinary concretions found in the bladders of inferior animals contain no uric acid; they consist mainly of carbonate and phosphate of lime cemented by animal matter.

For an account of the symptoms which gravelly concretions produce, and for the dietetic and medicinal management of gravel and stone, see the articles Medicine and Surgery.

Calculi, Biliary, called gall-stones. Fourcroy described one species of these as consisting chiefly of adipocire; but Chevreul has given the name of *cholesterine* to the crystalline matter of biliary concretions, because it does not, like true adipocire, produce a soap with alkalies.

Cholesterine is described as a peculiar animal principle, insoluble in water, and nearly so in cold alcohol: but soluble in nitric acid. It is fusible at 280°, and if rapidly heated to about 400 it evaporates in dense smoke.

Some biliary calculi appear to be mere inspissations of bile, being soluble however in alcohol and water; and these inspissations are often found mixed in various degrees and proportions with the cholesterenic species, thus constituting concretions of intermediate characters.

The biliary calculi of the ox seem to consist almost entirely of the yellow matter of bile in a concrete state; this is used as a pigment. For further information on biliary concretions, see the article Medicine.

Calculus Differentialis is a method of differencing quantities, or of finding an infinitely small quantity, which, being taken infinite times, shall be equal to a given quantity; or, it is the arithmetic of the infinitely small differences of variable quantities. The foundation of this calculus is an infinitely small quantity, or an infinitesimal, which is a portion of a quantity incomparable to that quantity, or that is less than any assignable one, and therefore accounted as nothing; the error accruing by omitting it being less than any assignable one. Hence two quantities, only differing by an infinitesimal, are reputed equal. Thus, in astronomy, the diameter of the earth is an infinitesimal, in respect of the distance of the fixed stars; and the same holds in abstract quantities. The term, infinitesimal, therefore, is merely relative, and involves a relation to another quantity; and does not denote any real ens, or being. Now infinitesimals are called differentials, or differential quantities, when they are considered as the differences of two quantities. Sir Isaac Newton calls them moments; considering them as the momentary increments of quantities, e. g. of a line generated by the flux of a point, or of a surface by the flux of a line. The differential calculus, therefore, and the doctrine of fluxions, are the same thing under different names; the former given by M. Leibnitz, and the latter by Sir Isaac Newton: each of whom lay claim to the discovery. There is, indeed, a difference in the manner of expressing the quantities resulting from the different views wherein the two authors consider the infinitesimals; the one as moments, the other as differences. Leibnitz, and most foreigners, express the differentials of quantities by the same letters as variable ones, only prefixing the letter d: thus the differential of x is called dx; and that of y, dy; now dx is a

positive quantity, if x continually increase; negative, if it decrease. The English, with Sir Isaac Newton, instead of dx write $\dot{x}$ (with a dot over it); for dy, $\dot{y}$, &c. which foreigners object against, on account of that confusion of points which they imagine arises when differentials are again differenced; besides that the printers are more apt to overlook a point than a letter. The rules for differencing quantities are the very same as those for finding their fluxions. See FLUXIONS.

CALCULUS EXPONENTIALIS is a method of differencing exponential quantities, or of finding and summing up the differentials or moments of exponential quantities; or at least bringing them to geometrical constructions. By exponential quantity, is here understood a power, whose exponent is variable; e. g. x^x. a^x. x^y. where the exponent x does not denote the same in all the points of a curve, but in some stands for two, in others for three, in others for five, &c. To difference an exponential quantity is the same problem as to find its fluxion. See FLUXIONS.

CALCULUS INTEGRALIS, or SUMMATORIUS, is a method of integrating, or summing up moments, or differential quantities; i. e. from a differential quantity given, to find the quantity from whose differencing the differential results. The integral calculus, therefore, is the inverse of the differential one: and is similar to the inverse method of fluxions, the rules of which also apply to the calculus integralis. See FLUXIONS.

CALCULUS LITERALIS, or LITERAL CALCULUS, is the same with specious arithmetic, or algebra, so called from its using the letters of the alphabet; in contradistinction to numeral arithmetic, which uses figures. See ALGEBRA.

CALCULUS MINERVÆ, among the ancient lawyers, denoted the decision of a cause, wherein the judges were equally divided. The expression is taken from the history of Orestes, represented by Æschylus and Euripides; at whose trial, before the Areopagites, for the murder of his mother, the votes being divided for and against him, Minerva interposed, and gave the casting calculus or vote, on his behalf.

CALCULUS OF PARTIAL DIFFERENCES, is an improvement on the integral calculus suggested by M. D'Alembert. It applies successfully to some of the most difficult problems, such as those relating to vibrating cords, the propagation of sound, the equilibrium and motion of fluids, tautochrones in resisting media, &c.

When we have a function, z, of two variable quantities, x and y, or of a greater number, we know that by differencing first with respect to x, and then with respect to y, we have the differential $dz = p\,dx + q\,dy$, p and q being co-efficients that affect dx and dy respectively. Thus the complete differential of z is $p\,dx + q\,dy$; where $p\,dx$ and $q\,dy$ are the differentials to which are given the name of partial.

It is usual to denote these co-efficients of dx and dy, in this manner $\frac{dz}{dx}$, $\frac{dz}{dy}$; signifying what happens with regard to the function z, by making it first vary as x and dividing by dx, and then causing it to vary as y and dividing by dy; so that the complete value of dz is represented by $\frac{dz}{dx}dx + \frac{dz}{dy}$: and it is under this form that equations of partial differences commonly present themselves. Thus every equation between z, x, y, $\frac{dz}{dx}$, $\frac{dz}{dy}$, and, if we please, between one or several constant quantities, will be an equation of partial differences: such is, for example, the equation, $a\frac{dz}{dx} + b\frac{dz}{dy} - xy = o$; which signifies, that, in order to the solution of the problem producing this equation, we must find a function of x and y, such that the co-efficient of the differential dx multiplied by a, plus that of dy multiplied by b, shall be $= xy$. This is one of the simplest of this kind of equations, and is called an equation of partial differences of the first order. One of the second order, is of the form $\frac{d^2z}{dx^2} + \frac{d^2z}{axdy} + P = o$: and $\frac{d^3z}{dx^3} + \frac{d^3z}{dy^3} + P = o$, is one of the third order.

To give an idea of the nature and resolution of equations of partial differences, let us take one of the most simple, such as $\frac{dz}{dy} = P$, where P is any function whatever of x, y, and constant quantities. It is required, therefore, to find a function z of x and y, which, differentiated according to y and divided by dy, shall be equal to the given function P. In order to this, multiplying all by dy, we shall have $\frac{dz}{dy}dy = P\,dy$; whence it follows that $P\,dy$ is only a part of the differential of z, namely that which is found by making it vary as y: thus the integral of $\frac{dz}{dy}dy$, which is z (since the preceding expression resulted from the differentiation), making it only vary as y will be equal to S. $P\,dy$ plus, a function which can only be in terms of x, and which, similar to the constant quantity added to every integral to render it complete, can only be determined by the conditions of the problem. Representing indefinitely this function of x by F (x), we shall have $z =$ S. $P\,dy + F(x)$. So likewise, if we had $\frac{dz}{dx} = P$, we should find Z $=$ S. $P\,dx + F(y)$.

We present an example: Let the equation be $\frac{dz}{dy} = axy + y^3$; we shall have evidently S. $P\,dy = \frac{axy^2}{2} + \frac{y^4}{4}$; for in this expression we have only y variable. Thus z will be $= \frac{axy^2}{2} + \frac{y^4}{4} + b + F(x)$. Differencing this equation regarding y only as variable, we shall have $\frac{dz}{dy}dy = (axy + y^3)\,dy = P\,dy$; for F (x), ought not by the nature of the question to give any differential, x being reputed constant with regard to y.

We have, in this example, supposed z to be a function of only two variables, y and x; but it might have been a function of three variables,

ıt the complete value of $d z$ is represented by
$\frac{z}{x} d x + \frac{d z}{d y}$: and it is under this form that
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simplest of this kind of equations, and is
d an equation of partial differences of the
order. One of the second order, is of the form
$+ \frac{d^2 z}{a x d y} + P = o$: and $\frac{d^3 z}{d x^3} + \frac{d^3 z}{d y^3}$
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and have one or two partial differentials. Then, and in the first case, the arbitrary function might be a function of two other variables: thus, supposing z was a function of x, y, u, and that we had only one of the partial differences of z, as $\frac{d z}{d x}$, the method of integrating would be the same; we should integrate only with regard to x, and the function to add would be a function of y and u, denoted by F (y, u). Finally, in the case where we should have two partial differences, as $\frac{d z}{d x}, \frac{d z}{d y}$, of the three which would form the complete differential, we should have only to add a function of u, F (u), namely, that of the variable whose partial difference is absent; and thus it would be with a greater number of variable quantities.

But, omitting more complicated examples, we pass to the integral calculus of partial differences; which is the method of finding a function of several variables, when we know the relation of the differential co-efficients of the total differential. What we here call differential co-efficients, are the factors which affect the differentials $d x$, $d y$, $d t$, &c.: these co-efficients may be denoted by p, q, r, &c.; so that $p = \frac{d z}{d x}, q = \frac{d z}{d y}, r = \frac{d z}{d t}$, &c.: and if from hence we pass to the superior orders, we shall have $p^1 = \frac{d d z}{d x^2}, q^1 = \frac{d d z}{d y^2}, r^1 = \frac{d d z}{d t^2}$, &c. Thus, according to this manner of considering the calculus, it is required, having given the relation between p, q, r, &c., to determine the function z; or, otherwise, having given the equation $d z = p d x + q d y + r d t$, &c., and knowing the relation between p, q, and r, or between the differential co-efficients, and one or two of the variables x and y, the problem is reduced to the finding of z.

Let, therefore, the equation be $d z = p d x + q d y$ (limiting ourselves here to a function of two variable quantities), and suppose the relation between p and q to be thus expressed: $- q = a p + b$, where a and b are constant quantities; the value of z is thus obtained. In the preceding equation, putting for q its value $a p + b$, we have $d z = p d x + (a p + b) d y$; whence $d z - b d y = p (d x + a d y)$. But the first member of this equation is integrable, and gives $z - b y$; the second ought therefore to be so, if the differential proposed has an integral: and that this may have place it is necessary that p be a function of $x + a y$; whence it follows that the integral sought will be $z - b y = F(x + a y)$. Thus, we may form a variety of suppositions of relations between z, x, y and p, q, or of these latter between themselves and with the former; and there will result so many particular cases of equations of partial differences to integrate. Euler, in his Calculus Integralis, has given complete instructions on this subject: the reader may likewise advantageously consult Traites du Calcul differentiel et du Calcul Integral du. M. Lacroix.

The calculus of variations, suggested by Lagrange, is that by which, having given an expression or function of two or more variables whose relation is expressed by a determinate law we find what that function becomes when the law itself is supposed to experience any variation indefinitely small, occasioned by the variation of one or of several of the terms which express that law. This calculus is almost the only means of resolving a multitude of problems de maximis et minimis, wherein the difficulty is far greater than in such problems de maximis et minimis, as are the object of the ordinary differential or fluxionary calculus. Such, in this new order of difficulties, is the problem wherein it is required to ascertain the curve which will conduct a falling body in virtue of its acceleration to a given point, right line, or curve, in the least time.

In general every problem of this nature is reduced to finding the maximum or the minimum of a formula such as S. Z $d x$, where Z is a function of x, or of constant quantities, or of x and y, or of x, y, and z, or of more variables: Z may even contain integrals, as S V, &c., or integrals of integrals, as S V S v, &c.; and the methods of taking the variations of these expressions which constitute the rules of the calculus. See Lagrange's Analytical Functions. Cousin, Bossut, and Lacroix, have likewise explained its principles, and shown its applications, in their treatises on the Integral Calculus.

Calculus Tiburtinus, a sort of figured stone, found in great plenty about the cataracts of the Anio, and other rivers in Italy; of a white color, and in shape oblong, round, or echinated. These are a species of the striæ lapideæ, and so like sugar-plumbs, that it is a common jest at Rome to deceive the unexperienced by serving them up at desserts.

CALCUTTA, a city of Bengal, the capital of British India, and a bishop's see, stands upon the eastern bank of the river Bhagrarutti or Hooghly, about 100 miles from the Indian Ocean. It derives its name from Caly, the goddess of time according to the Hindoo mythology, and Cutta, a house or temple: a celebrated erection, to the honor of this goddess, having long stood near the villages of Gobindpore and Chuttanutty. The situation, though very advantageous both for external and internal commerce, vessels of the largest size coming up from the sea, and the Ganges opening a communication with the most northern parts of Hindostan, is considered unhealthy; the country round being marshy, and extensive lakes, with an immense tract of jungle, coming up close to the town. The Sunderbunds, a collection of marshy jungles, though they have been reduced by recent improvements, are still very extensive, and generate in this hot climate those diseases against which few European constitutions can long struggle. The approach to Calcutta is very striking, at full tide the river is about a mile broad, and both banks are lined with the villas of European residents. The spires of the churches, temples and minarets, the company's botanical gardens, and the citadel of Fort William, combine in a magnificent coup d'œil, and exhibit a first impression of the importance of the British possessions on this continent highly interesting and striking. This capital extends in a very various breadth, about six miles along the river. Between the town and Fort William is a noble esplanade, on one side of which appear the best houses of Calcutta, in a line with the new government-house. This is an Ionic structure on a rustic base, the central is the state part of the building, which was erected during the government of the marquis Wellesley. On the north side there is a flight of steps, under which carriages drive to the entrance, and on the south a circular colonnade, surmounted with a dome. The wings at the four corners contain the private apartments, and are connected together by well ventilated circular passages. The other public buildings are the town-house, the two English churches, the courts of justice, and the various places of native Portuguese, Armenian, Greek and Catholic worship. The metropolitan, under the title of bishop of Calcutta, assisted by three archdeacons, has the superintendence of all the ecclesiastical affairs of India; the other clergy are called chaplains, and are all considered as belonging to the military; except those who have charge of the two English churches. There is also a resident clergymen of the church of Scotland, and a church of that communion.

The southern part of Calcutta is occupied almost entirely by Europeans, who have adopted a style of building, at once magnificent in appearance, and well adapted to the climate. Every house of respectability is detached, enclosed with walls, and fronted with an elegant veranda shading a flight of steps. The northern part, which contains perhaps three-fourths of the city, is chiefly inhabited by natives, and is of a totally different appearance. The best houses are of brick, two stories high, and having terraces on the roof, but the far greater part are mere mud or bamboo cottages; the streets are narrow, crowded, unpaved, and filthy. The white ant commits great ravages in all parts of the town, and will sometimes wholly destroy the timbers of a house before any damage appears. Fires are also very frequent in the north part.

What was once the village of Chouringhee, and a mere collection of native huts, is now a splendid suburb of Calcutta, extending into the country a considerable distance. The sides of the principal square are 500 yards in extent, the middle being occupied by a large tank. Here is the old fort and the custom-house, in front of which a handsome quay has been lately constructed. In the back of this village is the burying-ground, no graves being allowed in the church-yard.

Fort William, the strongest fortress in India, stands about a quarter of a mile below the town. It is an octagon, not exact in its sides. Five of them next the land are regular, but the others being designed to guard against an attack by water, are accommodated to the bearing of the guns upon all objects in the river. The interior is very open and extensive; presenting large grass-plats and gravel-walks, shaded by trees intermixed with piles of balls, shells, rows of cannon, and accommodated for 12 or 15,000 men; a house for the commandant, a cannon foundry, and an arsenal, well supplied with stores. The works are so contrived as scarcely to be seen on the land side, but on a very near approach.

Upwards of twenty well furnished bazaars supply the city with all the requisites of life, and the materials of a very lucrative and extensive commerce with every part of the east. Vessels of all sizes, and to the amount of 50,000 tons burden, are often seen off the town: but the larger ships generally stop at Diamond harbour. There are several docks for building ships, and its commerce amounts to nearly £10,000,000 per annum. The tables of all classes here are supplied with game, and those of the wealthy with abundance of plantains, pine-apples, melons, peaches, and oranges. In 1802 the population was computed at 600,000; a few years after, (including the suburbs), at 1,000,000, of which about one-half may be given to the city. And the surrounding districts were said, in the same year, to contain within a space of twenty miles 2,225,000, or more than 1760 persons to a square mile. In the town there are supposed to be about 80,000 houses. In the year 1690 the English first founded a factory here, by virtue of a firman granted to them by the emperor Aurengzebe. In the year 1696, in consequence of a rebellion in Bengal, they were allowed to fortify it. This place is that called the Old Fort, and it is 210 yards in length and about 115 in breadth; and consisting of a rampart and four bastions, with two gates. It contains all the company's store-houses, and a few dwelling-houses. In the year 1698, the prince Azeen Ooshan, grandson of Aurungzebe, granted the Company a perpetual lease of the three villages before mentioned; in the subsequent year, in compliment to king William, the factory was dignified with the title of Fort William. It and the town continued to flourish till the year 1756, when it was taken by the nabob Suraja Dowlah, and the greater part of the garrison were suffocated in the infamous black hole, which is now used as a store room. The nabob now changed its name to Alynagur, but when it was retaken by lord Clive and admiral Watson, in 1757, its former title was restored. The new fort was begun in 1758. Calcutta contains, besides the supreme court of justice, a court for the district of Calcutta, and a number of police magistrates to superintend the peace of the town. There are also courts of appeal from the Calcutta circuit, and from all the other courts of justice of Bengal and its dependencies. The natives out of Calcutta are tried by their own laws. Here are also a College, well endowed by government, and which cultivates any branch of oriental literature with great success; an Asiatic Society, and other literary institutions; a theatre, assembly rooms in abundance, &c.

During the late war with France, the European inhabitants were all embodied into a militia corps of infantry and cavalry, and formerly the city was nearly surrounded by a trench called the Mahratta ditch, but it has been for some time dry. Ascending the river from Calcutta we arrive at Barnagore, a village on the east bank, where the Dutch had formerly a fort. Serampore, on the right bank, ten miles above Calcutta, is a Danish settlement, consisting of a few factors' houses, and a native town, with a battery for saluting. Here are the chief establishments of the Baptist mission. Accounts are kept here in

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current rupees, an imaginary coin, annas and pici, twelve pici being one anna, and sixteen annas a rupee.

In 1811-12, there arrived at Calcutta

Vessels.		Tonnage.
193	under English colors . . .	78,504
11	under Portuguese colors . .	4,180
8	under American colors. . .	2,313
389	under Indian colors, of all sizes	66,227
601		151,224

The clearances out were about of similar amount. Calcutta stands in N. lat. 22° 34., E. long. 88° 28′

CALCARIA Judiciaria, in our ancient barbarous customs, the method of trial by boiling water. See Ordeal.

CALDARIUM, in the ancient baths, 1. A brazen vessel of hot water, placed in the hypocaustum, to be drawn thence into the piscina or bath, to give it the proper heat: 2. A stove or sudatory, being a close vaulted room, wherein by hot dry fumes, without water, people were brought into a profuse perspiration.

CALDERON (Don Pedro, De la Barca), a Spanish officer, who, after having signalised himself in the military profession, quitted it for the ecclesiastical, and then commenced dramatic writer. His dramatic works make 17 vols. in 4to. Some Spanish writers have compared him to Shakspeare. He flourished about 1640.

CALDERWOOD (David), a divine of the church of Scotland, and a distinguished writer in behalf of the Presbyterians. He was settled about 1604 at Crelling near Jedburg. Being desirous of bringing the church of Scotland nearer to a conformity with that of England, King James I. earnestly endeavoured to restore the episcopal authority, and enlarge the powers of the Scotch bishops. This was very warmly opposed by many of the ministers, particularly by Mr. Calderwood; who, when James Law, bishop of Orkney, came to visit the presbyteries of Merse and Teviotdale, declined his jurisdiction, by a paper dated May 5th, 1608. In May, the next year, king James went to Scotland; and on the 17th June held a parliament at Edinburgh: when the clergy met in one of the churches, to advise with the bishops. This assembly was contrived in order to resemble the English convocation. To this Mr. Calderwood objected; and on hearing of their intention to pass a bill, empowering James to alter the constitutions of the church, he, with several other ministers, protested, and said that they would rather submit to any penal law than obey such an authority. This protest was presented to the clerk register, who refused to read it before the states. However, though not read, it had its effect; for although the bill had the consent of parliament, yet the king caused it to be laid aside, and not long after called a general assembly at St. Andrews. Soon after, the parliament was dissolved, and Mr. Calderwood was summoned to appear before the high commission court at St. Andrews, to answer for his mutinous and seditious behaviour. The king came to that city in person; and Mr. Calderwood, refusing to comply with what the king in person required of him, was imprisoned. Afterwards the privy council ordered him to banish himself out of the king's dominions before Michaelmas, and not to return without licence. Having unsuccessfully applied to the king for a prorogation of his sentence, he retired to Holland, where, in 1623, he published his celebrated piece entitled Altare Damascenum, in which he attacks the church of England with great asperity. He returned home and remained some time in obscurity. During his retirement, he collected all the memorials relating to the ecclesiastical affairs of Scotland, from the beginning of the Reformation to the death of king James; which collection is still preserved in the university library in Glasgow. In 1643 he was employed in drawing up the Form of the Directory for the public Worship of God by the General Assembly. He died at Jedburg about 1652.

CAL'DRON, Lat. *caldarium*; Fr. *chaudron*. A large pot or boiler.

> In the midst of all
> There placed was a *caldron* wide and tall,
> Upon a mighty furnace, burning hot.
>
> *Faerie Queene.*

> Fire burn; and *cauldron* bubble. *Shakspeare.*

> And now about the *cauldron* sing
> Like elves and fairies in a ring,
> Enchanting all that you put in. *Id.*

And the priest's custom was, that when any man offered sacrifice, the priest's servant came while the flesh was in seething, with a flesh-hook of three teeth in his hand: and he struck it into the pan, or kettle, or *caldron*, or pot, all that the flesh-hook brought up the priest took for himself. 1 *Sam.* ii. 14.

> Some strip the skin; some portion out the spoil;
> The limbs, yet trembling, in the *caldrons* boil;
> Some on the fire the reeking entrails broil.
>
> *Dryden's Æneid.*

In the late eruptions, this great hollow was like a vast *caldron*, filled with glowing and melted matter, which, as it boiled over in any part, ran down the sides of the mountain. *Addison.*

CALDWALL (Richard), a learned English physician, born in Staffordshire, about 1513. He studied physic at Oxford; and was examined, admitted into, and made censor of, the college of physicians at London, all in one day. Six weeks after he was chosen one of the elects; and in 1570, president. He wrote several medical pieces, and translated a book on the art of surgery, written by one Horatio More, a Florentine physician. Camden says that Caldwall founded a chirurgical lecture in the college of physicians and endowed it with a handsome salary. He died in 1585.

CALE, or Kale, a species of brassica.

Cale (la), a French punishment, inflicted when a soldier, or sailor, maliciously wounds another. The offender is tied to the yard arm, suddenly plunged into the sea and then drawn up again, as often his offence merits.

CALEB, in botany, a genus of the polygamia æqualis order, and syngenesia class of plants; natural order, forty-ninth, compositæ. Receptacle paleaceous, the pappus hairy, calyx imbricated. There are eight species, natives of the West Indies.

Caleb, the son of Jephunneh, of the tribe of Judah, one of the twelve spies who were sent to view the land of Canaan, and the only one who joined with Joshua in giving a favorable report of it. His capture of Hebron, defeat of the Anakims, and portioning of his daughter Achsah, are recorded in Josh. xiv. 6. 15, xv. 13. 19, and Judg. i. 9, 15. This hero had three sons and a numerous posterity.

CALEDONIA, the ancient name of Scotland. From Tacitus, Dio, and Solinus, we find that ancient Caledonia comprehended all that country lying north of the Forth and Clyde. In proportion as the Silures or Cimbri advanced toward the north, the Caledonians, being more circumscribed, were forced to emigrate into the islands on the western coasts of Scotland. It is in this period, probably, we ought to place the first great migration of the British Gael into Ireland; that kingdom being much nearer to Galloway and Cantire, than many of the Scottish isles are to the continent of North Britain. To the country which the Caledonians possessed, they gave the name of Cael-doch; which is the only appellation the Scots, who speak the Gaelic language, know for their own division of Britain. Cael-doch is a compound of Gael or Cael, the first colony of the ancient Gauls who emigrated into Britain, and doch, a district or division. The Romans, by transposing the letter l in Cael, and by softening into a Latin termination the ch of doch, formed the well known name of Caledonia. This appears to be a much more natural etymology than that of Camden, from the old British word kaled, hard, because the people were a hardy rustic race. See SCOTLAND.

CALEDONIA, NEW, an island in the South Sea, discovered by Captain Cook, and next to New Holland and New Zealand, the largest that has been discovered in that sea. It extends from 19° 37′ to 22° 30′ S. lat. and from 163° 37′ to 167° 14′ E. long. Its length from north-west to south-west is about eighty leagues; but its greatest breadth does not exceed ten leagues. This island is diversified by hills and valleys, amongst which issue abundance of rivulets. Along its north-east shore the land is flat; well watered, and cultivated; but the mountains and higher parts of the land are in general barren. The country in general bears a great resemblance to those parts of New South Wales, which lie under the same parallel. Its natural productions are also generally the same, and the woods are without underwood, as in that country. The whole coast is surrounded by reefs and shoals which render access to it dangerous; but every part seems inhabited. The natives begin their cultivation by setting fire to the grass, &c. with which the ground is covered, but have no notion of preserving its vigor by manure; they, however, recruit it by letting it lie for some years untouched. New Caledonia seems to differ from all the other islands yet discovered in the South Sea, in being entirely destitute of volcanic productions. New species of several plants were found, particularly a new passion-flower; and a few young bread-fruit trees not sufficiently grown to bear fruit; plantains and sugar-canes are found here also in small quantity, and cocoa nut trees are small and thinly planted. Caputi or Melaleuca trees were also found in flower Mosquitoes are very numerous. A great variety of birds were seen, for the most part entirely new; particularly a beautiful species of parrot before unknown. A new species of fish, of the genus tetraodon, was caught by captain Cook's people, and after some hesitation cooked and eaten. Its oiliness, happily, though it had no other bad taste, prevented them from taking above a morsel or two. In a few hours after they had retired to rest, they were awakened by alarming symptoms, being all seized with an extreme giddiness: their hands and feet benumbed, so that they were scarcely able to move; and great languor and oppression coming over them. Emetics were administered with some success, but sudorifics relieved them. But the effects of this poison did not go off entirely for six weeks. There are great numbers of turtles on this island. The houses are circular huts, something like a bee-hive, and full as close and warm; they commonly erect two or three near each other under a cluster of lofty fig-trees, whose leaves are impervious to the sun. Their canoes are clumsy vessels, made of two trees hollowed out, having a raised gunnel about two inches high, and closed at each end with a bulk head of the same height; so that the whole is like a long square trough, about three feet shorter than the body of the canoe. Two thus fitted are fastened to each other about three feet asunder, by means of cross spars, which project about a foot over each side. A deck is laid over them, made of plank and small round spars, on which they have a hearth, and generally a fire burning; they are navigated by one or two latteen sails, extended to a small latteen yard, the end of which is fixed to a notch in the deck. The inhabitants are robust, in general well proportioned, and of honest dispositions. A few measured six feet four inches. Some wear their hair long and tie it up to the crown of their heads; others suffer only a large lock to grow on each side, which they tie up in clubs; many others as well as all the women wear it cropt short. The men go almost entirely naked. The dress of the women who are of modest character, is a short petticoat or fringe, consisting of filaments or little cords, about eight inches long, fastened to a very long string, which they tie several times round their waist. The married women wear a black and the unmarried a white petticoat. The general ornaments of both sexes are ear-rings, necklaces, amulets, and bracelets made of shells, stones, &c. Their fishing tackle they prize above everything. Notwithstanding their inoffensive disposition, these islanders are well provided with clubs, spears, darts, and slings: their clubs are about two feet and a half long, and variously formed; some like a scythe, others like a pick-axe; some with a head like a hawk, others with round heads; but all neatly made, and ornamented. The slings are simple, but they form the stones into a shape something like an egg. They drive the dart by the assistance of short cords knobbed at one end and looped at the other, called by the seamen beckets. These contain a quantity of red wool taken from the great Indian bat. Bows and arrows are wholly

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unknown among them, and their language bears little affinity to that spoken in the other South Sea islands; their only musical instrument is a kind of whistle of brown wood, about two inches long. Many of them were observed to have their legs and arms much swelled with a kind of leprosy. Lieutenant Pickersgill was showed a chief whom they named Tea-beoma, and styled their arrekee or king; but nothing further is known of their government, and nothing at all of their religion. The French expedition called here in 1793, and found the inhabitants much altered for the worse both in their manners and condition. Many groups of herds were deserted, and cultivated land abandoned: in 1774 it was supposed to have had 50,000 inhabitants, but seems at this last visit to have declined greatly. Long. 163° 3;′ lat. 20° S.

CALEDONICA, in ornithology, a species of ardea, the Caledonian night heron of Latham. The general color of the plumage is ferruginous and white beneath: legs yellow; crest on the back of the head of three feathers; bill and frontlet black, eye-brows white, area of the eyes green.

CALEFACIENTIA, or CALEFACIENTS, in medicine, heating or warming medicines.

CALEFACTION may be defined, the production of heat in a body from the action of fire, or that impulse impressed by a hot body on others around it. It is used in pharmacy, by way of distinction from coction, which implies boiling. Medicines of this kind diffuse a sensation of warmth by their immediate impression on the nerves, without any actual increase of the temperature; they also tend to accelerate the circulation, and therefore to augment the actual heat. It has been ascertained that the animal temperature is generated by the chemical changes which take place in the blood in the course of circulation, in consequence of the absorption and evolution of different gaseous fluids. Whenever, therefore, the rapidity of the circulation at large is increased, by general stimulants; or the vessels of any part are, by a local stimulas, excited to greater action, and transmit a larger proportion of blood; the evolution of heat will necessarily be augmented; and there will be a sensation of warmth in the general system in all its parts.

CALENBERG, a principality of Lower Saxony, one of the four divisions of Brunswick; bounded on the north by the duchy of Verden, on the east by the principality of Zell, on the south by those of Grubenhagen and Wolfenbuttle, and on the west by Westphalia. See BRUNSWICK.

CALENBERG, a castle of Germany, in the principality seated on the river Leine, fifteen miles south of Hanover, and subject to the King of Hanover. Long. 9° 43′ E., lat. 52° 20′ N.

CALENDAR, in astronomy and chronology. See CHRONOLOGY. The late revolutionary calendar of the French was a distribution of time entirely new, adopted by the Convention, soon after the abolition of royalty, in 1792; and still continued with little alteration until 1801. The year commenced at midnight, on the beginning of that day, on which the true autumnal equinox falls, by the observatory of Paris. It was divided into twelve equal months, of thirty days each; after which five supplementary days were added, to complete the 365 days of the ordinary year. These five days did not belong to any month. They were first named sans-culottides, in honor of the sans-culottes, or inferior ranks of society; but this name was changed soon after the revolution in July 1794. Each month was divided into three decades of ten days each; distinguished by first, second, and third decade. The years that received an intercalary day, when the position of the equinox requires it, which we call embolismic, bissextile, or leap-years, the French called olympic; and the period of four years, ending with an olympic year, an olympiad. The intercalary day, on that occasion, was placed after the ordinary five supplementary days, and being the last day of the olympic year, was dedicated to olympic games to be celebrated in honor of the revolution; and to the renovation of the national oath, 'To live free or die.' The months had all new names expressive of their respective relations, either to the season of the year, the temperature of the air, or the state of the vegetation. Each day from midnight to midnight, was divided into ten parts, each part into ten others, and so on to the last measurable portion of time. The days of the decade were denominated from the first ten numbers, thus; Primdi, Duodi, Tridi, Quatridi, Quintidi, Sextidi, Septidi, Octidi, Nonidi, Decadi. In the almanac, or annual calendar, instead of the numerous names of saints, in the popish calendars, every day was inscribed with the name of some animal, utensil, work, fruit, flower, or vegetable, suited to the day or the season. As a curious relic of the revolution, and containing some improvements mixed with far more serious objections, we subjoin

THE NAMES OF THE MONTHS AND SUPPLEMENTARY DAYS.

	NAMES.	SIGNIFICATION.		DURATION.		
AUTUMN.	Vendemiaire,	Vintage month,	from	Sept. 22.	to	Oct. 21.
	Brumaire,	Fog month,	——	Oct. 22.	—	Nov. 20.
	Frimaire,	Sleet month,	——	Nov. 21	—	Dec. 20.
WINTER.	Nivose,	Snow month,	——	Dec. 21.	—	Jan. 19.
	Pluviose,	Rainy month.	——	Jan. 20.	—	Feb. 18.
	Ventose,	Windy month.	——	Feb. 19.	—	March 20.
SPRING.	Germinal,	Bud month,	——	March 21.	—	April 19.
	Floreal,	Flower month,	——	April 20.	—	May 19.
	Prairial,	Pasture month,	——	May 20.	—	June 18.
SUMMER.	Messidor,	Harvest month,	——	June 19.	—	July 18.
	Thermidor,	Hot month,	——	July 19.	—	Aug. 17.
	Fructidor,	Fruit month,	——	Aug. 19.	—	Sept. 16.

SUPPLEMENTARY DAYS, DEDICATED AS FEASTS TO

Les Vertus,	The Virtues,	Sept. 17.
Le Génie,	Genius,	Sept. 18.
Le Travail,	Labor,	Sept. 19.
L'Opinion,	Opinion,	Sept. 20.
Les Recompenses	Rewards,	Sept. 21.

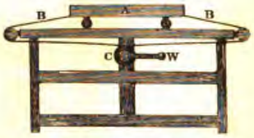
CALENDAR OF PRISONERS, in law, a list of all the prisoners' names in the custody of each sheriff. See EXECUTION.

CALENDARIUM FESTUM. The Christians retained much of the ceremony and wantonness of the calends of January, which for many ages was held a feast, and celebrated by the clergy with great indecencies, under the names of festum kalendarium, or hypodiaconorum, or stultorum, i. e. the feast of fools. The people met masked in the church, and in a ludicrous way proceeded to the election of a mock pope, who exercised a jurisdiction over them suited to the festivity of the occasion. Fathers, councils, and popes, long labored to restrain this licence, to little purpose. The feast of the calends was in being as low as the close of the fifteenth century.

CAL'ENDER, *v.* & *n.* }
CAL'ENDERER, *n.* } Lat. *cylindrus*; Fr. *calandrer*; a hot press, an iron cylinder filled with hot coals. To calender is, with this instrument to hot-press; to dress cloth; to lay the nap of cloth smooth. A calender is also a press in which clothiers smooth their cloth.

CALENDER is a machine used for pressing silks, stuffs, calicoes, or linens; to make them smooth, even, and glossy. It is also used for watering, or giving the waves to tabbies and mohairs. The word came into our language perhaps immediately from the French calandre, which is derived from the Latin cylindrus: because the whole effect of the machine depends upon cylinders.

These commonly consist of two large wooden rollers, round which the pieces are wound; they are then put between two large, close, polished planks of wood, or plates of iron, the lower serving as a fixed base, and the upper being movable, by means of a wheel like that of a crane, with a rope, fastened to a spindle, which makes its axis; this upper part is of a prodigious weight, sometimes twenty or thirty thousand pounds. It is the weight of this part, together with its alternate motion, that gives the polish, and makes the waves on the stuffs, by causing the cylinders on which they are put to roll with great force over the lower board. The rollers are taken off, and put on again by inclining the machine. The French used formerly an extraordinary machine, called the royal calender, made by order of M. Colbert; the lower table or plank of which was made of a block of smooth marble, and the upper lined at bottom with a plate of polished copper. This was called the great calender, they have also a small one with tables of polished iron or steel. Calenders without wheels are sometimes wrought by a horse harnessed to a wooden bar, which turns a large arbor placed upright; at the top of which, on a kind of drum, is wound a rope, the two ends of which, being fastened to the extremities of the upper plank of the engine, give it motion. But the horse calender is in little esteem. Worsteds are sometimes calendered in the thread. Domestically this operation is also known by the name of mangling; and a section of the useful machine once so common in England, is seen below.



This is in fact merely a strong level table, with a stout cover, and made of well seasoned wood to prevent its casting. The cloth being smoothly spread upon it, the coffer A, which is placed upon two smoothly turned rollers of iron, is made to move alternately from one end of the table to the other, until the cloth is sufficiently smoothed, when a fresh portion is spread upon the table, and the operation repeated until the process is finished with the whole. The cloth may be very regularly and quickly drawn along the table, by unwinding it from a roller at one end, and winding it upon a similar roller at the other. If it be desirable occasionally to employ heat, it may be done by casting the iron rollers of the coffer, A, hollow, and filling the cavity with small cylinders of cast iron, previously heated. The motion is communicated to the coffer, A, by two belts, cords, or chains B, B, which, after passing over a pulley at either end of the table, are wound round the cylinder or barrel C. By turning a handle or winch, W, the barrel is moved round, and the motion communicated to the box in either direction.

While the foregoing machine has been found very serviceable in large families, and will shorten the operation of ironing, as it is termed, by disposing quite as neatly of bed linen and large clothes; for purposes of business, what has been called the five bowl calender is generally used. This machine is usually set in motion by a horse, or in large manufactories by water wheels, or the steam engine; we give in our plate CALENDERING an elevation of it. Fig. 1. is a front elevation. The frame work, A, consists of three strong pieces of hard wood, and sometimes of cast iron, two of them upright (made generally of 12-in. by 6 stuff), and connected by a transverse piece at top equally stout, and perhaps by a cross rail below; both being well secured by screw bolts, as upon them bears the whole stress of the machine. What are called the bowls, or calenders, are placed one above the other between the top and the bottom. Of these the bowls marked *e* and *i*, are generally of the same diameter, and made of hard wood or iron. In working the machine, the whole five bowls are made to revolve on their respective axes, each moving in an inverted direction to that next it, or with which it

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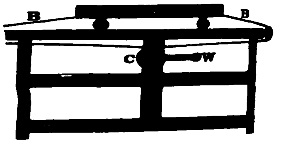

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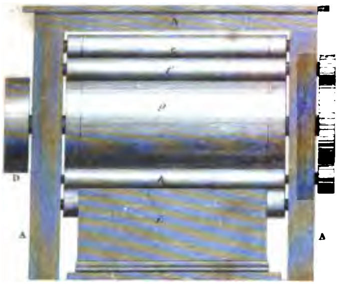


Fig. 2.

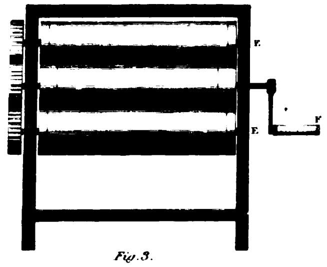
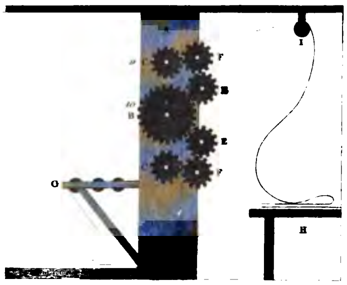
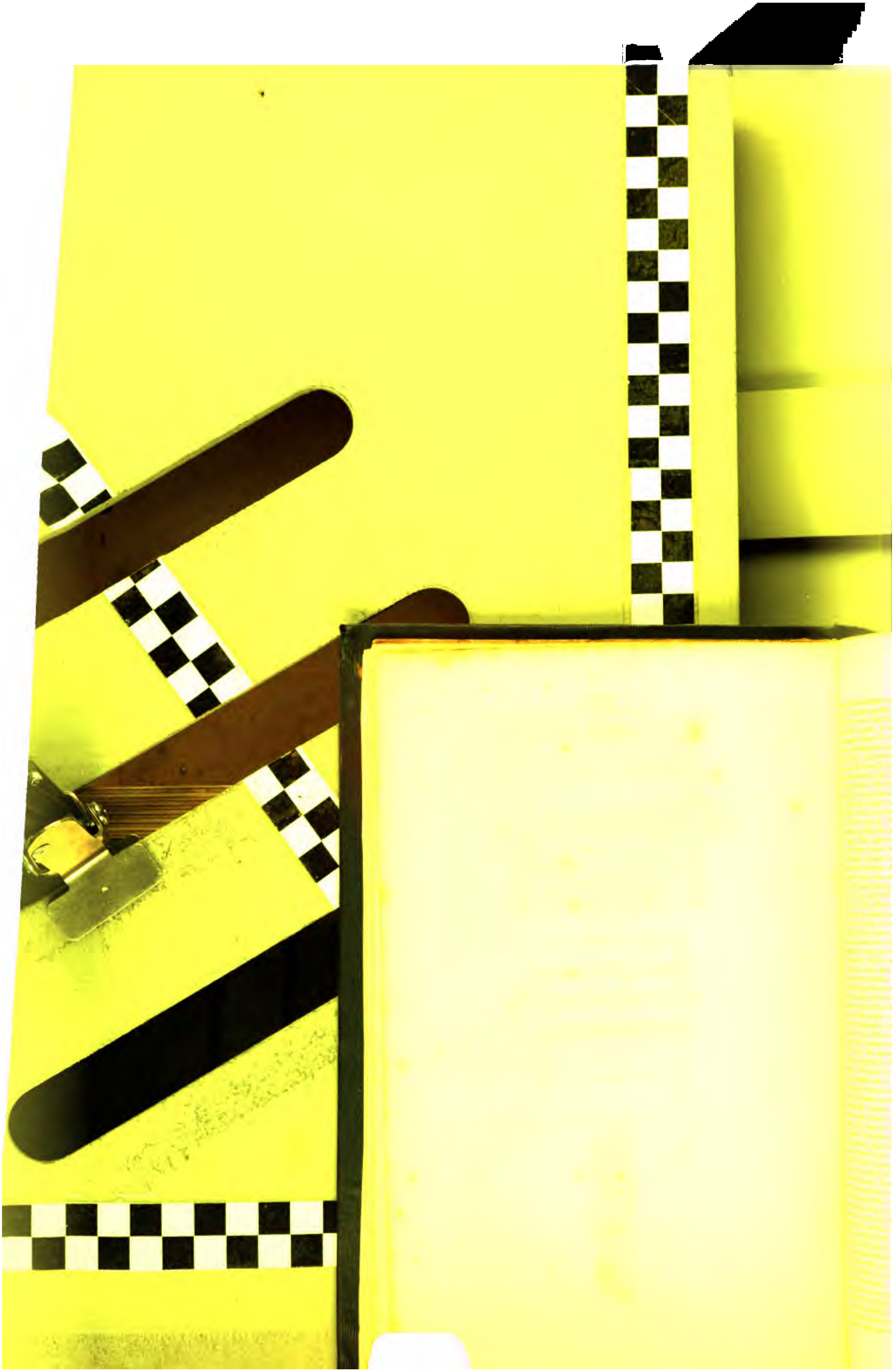


Fig. 3.



London. Published by Thomas Tegg, 73, Cheapside.



moves; and the revolutions are in an inverse ratio to the diameters, exposing an equal portion of the circumference of each to that of the other against which it presses. A belt passing over and turning the pullies at D, communicates the motion; a pully being fast upon the axis of the main cylinder *g*. *f* and *h* receive their motions by means of the wheels C C being worked with B, affixed to the axis of *g e* and *i*, by their regular friction upon *f* and *h*. The cloth is placed first down the front of *e*, and behind *f*; then in front of *g*, and behind *h*, finally it comes out in front of *i*, and falls down on a clean board or into a box contrived to receive it. The folding it up smoothly and carefully, now prepares the cloth for pressing. This is generally done by placing a certain number of pieces between thin smooth boards of wood, and pieces of glazed pasteboard above and below every piece of cloth. For the common screw press, water presses on the principle of Mr. Bramah's forcing press have been lately introduced, and by this means, while the strength of a child is sufficient for the operation, its power may be rendered greater than almost any ordinary exertion of human force. Their successful operation, however, depending greatly upon local circumstances, they have not as yet superseded the common screw press in Glasgow and Manchester. See Hydraulics.

f, and *h*, as we have said, are generally hard wood or cast iron cylinders, and the main cylinder or bowl *g*, used formerly to be made of wood. But in Lancashire, what have been called paper bowls are now generally preferred. Its first cost is five or six times as great as that of a wooden one, but its advantage is, that it never warps or splits, and takes eventually a much smoother surface, while it presses better against every part of the cloth. The construction of the paper bowl is thus explained in Dr. Brewster's Encyclopedia. The axis of the cylinder is a square bar of malleable iron, of the proper length. Upon this is first put a strong round plate of cast iron, of the diameter intended for the cylinder when finished. A quantity of thick stout pasteboard is then procured, and cut into round pieces, rather larger in the diameter than the iron plate. In the plates, and in every piece of the pasteboard, a square hole must be cut in the centre to receive the axis; and the circle being divided into four or five equal parts, a hole must also be cut at each of the divisions, an inch or two within the rim. These pieces of pasteboard being successively put upon the axis, a long rod of malleable iron, with a head at one end, and screwed at the other, is also introduced through each of the holes near the rim, and this is continued until a sufficient number are thus placed to form a cylinder of the length required, proper allowance being made for the compression which the pasteboard is afterwards to undergo. Another round plate is then put on, and nuts being put upon the screws, the whole are screwed tight, and a cylinder formed. The cylinder is now to be placed in a stove, exposed to a strong heat, and must be kept there for at least several days; and, as the pasteboard shrinks by exposure to the heat, the screws must be frequently tightened until the whole mass has been compressed as much as possible. When the cylinder is thus brought to a sufficient degree of density, it is removed from the stove; and, when allowed to cool, the expansion of the pasteboard forms a substance almost inconceivably dense and hard. Nothing now remains but to turn the cylinder, and this is an operation of no slight labor and patience. The motion in turning must be slow, not exceeding forty revolutions in a minute, and the substance is now so hard and tough, that tools of a very small size must be used to cut or scrape it until true. Three men are generally employed for the turning, even when the motion of the cylinder is effected by mechanical power, two being necessary to sharpen tools for the third who turns, so quickly are they blunted.

This useful engine was first introduced into this country by the Hugonots, driven by persecution from France and Holland. Lawns and muslins being of light texture, require a machine of lighter power and pressure. This is represented in our plate Calendering, fig. 2, and consists of three cylinders of equal diameters (generally about six inches), easily moved by a common winch or handle at F. The central cylinder is iron, and the others wood or pasteboard. They are moved with equal velocities by the small wheels at E. The machine is always used cold.

The Glazing Calender, an improvement upon the common five-bowl calender for the purposes of glazing cloth, was first invented by the superintendent of Mr. Miller's works of Glasgow: a profile view and description of the machine are furnished in the Edinburgh Encyclopædia, whence we extract it. The machine is exhibited in fig. 3 of our plate. It consists of five bowls or cylinders, like the common calender, but instead of those bowls revolving with a velocity in the inverse ratio of their respective diameters, so as always to present an equal surface, and to act merely by their pressure against each other, the bowls or cylinders *f* and *h* move with greater velocity than the bowls *e*, *g*, and *i*, and thus create or generate friction at three several parts of the operation. This difference is produced merely by the addition of a few wheels; and the difference between the common and glazing calender will be seen at a single glance, by comparing the wheel work of figs. 1. and 3. In fig. 1 the motion of all the cylinders is in the inverse ratio of their diameters, so that each presents an equal surface. In fig. 3 the motion, instead of being directly communicated from 9 to 7, as in fig. 1, is given by the intervention of two additional wheels. The increase of motion depending entirely on the relative number of the wheels B and C, on the axis of the cylinders 9 and 7 to each other (for the intermediate wheels E and F merely communicate the motion without affecting the velocity), 9 is made to revolve considerably quicker than in the common calender, and thus the necessary friction is created. To reduce the glazing to the common calender, it is only necessary to remove the wheels E and F entirely, and to substitute a larger wheel for the wheel B, which may be calculated to work directly into the wheel C. The profile view given in this figure affords opportunity also of showing the way in which the cloth is conducted from the table H over the roller I, through the calender, and received again at G. This is common to both calenders. A patent for Scotland was taken for the glazing calender; and, upon a trial of some years, it has met with the entire approbation of those who have been in habits of having their goods glazed by it. As one machine, by being worked day and night, is capable of glazing nearly 1000 pieces of cloth of twenty-eight yards each, in a week, it is peculiarly adapted for the occasional hurry to which shippers are sometimes unavoidably subjected.

Calenders, a sect of dervises, or Mahommedan friars, the disciples of Santon Calenderi. They are rather a sect of Epicureans than a society of religious. They honor a tavern as much as a mosque, and think they pay as acceptable worship to God by the free use of his creatures as others do by the greatest austerities and acts of devotion. They are called in Persia, and Arabia, Abdals or Abdallat, i. e. persons consecrated to the honor and service of God. Their garment is a single coat, of a variety of pieces, quilted like a rug. They preach in the market-places, and live upon what their auditors bestow upon them.

CAL'ENDS, *n.*
Cal'endar, *v.* & *n.*
Calen'dographer. } Lat. *calendarium*. An almanac, or yearly register, in which the months and stated times are marked as festivals and holidays. The first days of the months were denominated kalends. The word means calling, or proclaiming, and was applied to these particular days, because on them it was declared, or announced, whether the nones of the months should be five or seven. To calendar, is to record, or register.

Twenty-five years have I but gone in travail
Of you my sons; nor till this present hour,
My heavy burdens are delivered :—
The duke my husband, and my children both,
And you the *calendars* of their nativity,
Go to a gospel's feast, and go with me.
Shakspeare. Comedy of Errors.

What hath this day deserved? what hath it done,
That it in golden letter should be set
Among the high tides, in the *calendar*?
Shakspeare. King John.

We compute from *calendars* differing from one another; the compute of the one anticipating that of the other. *Brown.*

Cursed be the day when first I did appear;
Let it be blotted from the *calendar*,
Lest it pollute the month! *Dryden's Fables.*

Experienced men, inured to city ways,
Heed not the *calendar* to count their days. *Gay.*

Calends, in Roman antiquity. See Kalends.

Calends, Greek, a proverbial expression among the Romans, adopted into most modern languages, signifying never, because the Greeks had no calends.

CALENDULA, in botany, the marigold; a genus of the polygamia necessaria order, and syngenesia class of plants; natural order forty-ninth, compositæ. The receptacle is naked; there is no pappus: cal. polyphyllous and equal; the seeds of the disk membranaceous. Of this there are twenty-five species; natives of the Cape and South of Europe. They are so well known as to need no description except— C. fructicosa, which some years ago was introduced from the Cape of Good Hope. It has a slender shrubby perennial stalk, rising to seven or eight feet, but requiring support: this sends out a great number of weak branches, from the bottom to the top, which hang downward unless supported: they are garnished with oval leaves, having short flat foot-stalks, of a shining green color on their upper side, but pale underneath. The flowers come out at the end of the branches, on short naked foot-stalks. The flowers of the common marigold have been exhibited medicinally: as aperients in uterine obstructions and icteric disorders, and as diaphoretics in exanthematous fevers. The leaves of the plant are stimulating, aperient, and antiscorbutic.

Calendula, in ornithology, a species of the motacilla, found in Pennsylvania. The color is greenish ash, the crown having a deep yellow hue, and the abdomen and wings yellowish beneath. This is the roitelet rubis of Buffon, the ruby crowned wren of Latham, and calendula Pennsylvanica of Brisson.

CALENS, in entomology, a species of chrysis of a large size: color glossy blue; abdomen golden; tail blue and armed with four teeth. Found in Siberia. Also a species of cimex found in India. The head, thorax, and wing-cases, are black, scutel fulvous.

CAL'ENTURE, Lat. *caleo*; Span. *calentar*, *calentura*; the word signifies to heat; a fever. Dr. Johnson says, it is a disease peculiar to sailors in a hot climate, wherein they imagine the sea to be green fields, and will throw themselves into it. This sense may be gathered from some of the following illustrations :—

Thus said the scarlett whore to her gallant,
Who strait designed his brother to supplant;
Fiends of ambition here his soul possessed,
And thirst of empire *calentured* his breast. *Marvell.*

And for that lethargy there was no cure,
But to be cast into a *calenture*. *Denham.*

So, by a *calenture* misled,
  The mariner with rapture sees,
On the smooth ocean's azure bed,
  Enamelled fields and verdant trees:
With eager haste he longs to rove
  In that fantastic scene, and thinks
It must be some enchanted grove;
  And in he leaps, and down he sinks.
Swift.

Calenture, in medicine, is a disease more frequently mentioned by former than by any later writers of credit. Dr. Stubbs (Philosph. Transact. No. 36.) relates two cases which occurred during a voyage to Jamaica. They were accompanied with delirium, independent of fever, and produced by disorders in the stomach and bowels. The symptoms were therefore quickly removed by an emetic. The popular definition describes it as a distemper peculiar to seamen in hot climates, in which they imagine the

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sea to be green fields and will throw themselves into it. Such is the common idea; but it is most probable that the natural wish of a febrile delirium to cool the body, by leaping into water, has in this case been mistaken for the imagination of green fields &c. in the sea. A calenture has been cured by vomiting, bleeding, a spare diet and the neutral salts; a single vomit commonly removing the delirium, and the cooling medicines completing the cure.

CALES, in ancient geography, a municipal city of some note in Campania near Casilinum.

CALF, *n.*
Calve', *v.*
Calf'-like,
Cal'vish,
Calf'-head,
Calf'-skin.

Teut. *kable*, *kalbe*; Sax. cealf; Swed. *kalf*; Arm. *kelve*, apparently from Goth. *ko*, a cow, and *alf*, progeny; *ala*, *afla*, to bring forth. Milton uses the word in this general sense; but its common acceptation is the young of a cow. The same word, differently derived, signifies the thick part of the leg. Goth. and Swed. *kafle*, is a round stump.

I would they were barbarians, as they are,
Though in Rome littered; no Romans, as they are not,
Though *calved* in the porch o' the' capitol.
Shakspeare.

When she's *calved*, then set the dam aside,
And for the tender progeny provide. *Dryden.*

The colt hath about four years of growth; and so the fawn, and so the *calf*. *Bacon's Natural History.*

Acosta tells us of a fowl in Peru, called condore, which will kill and eat up a whole *calf* at a time. *Wilkins.*

Ah, Blouzelind! I love thee more by half
Than does their fawns, or cows the new-fallen *calf*.
Gay.

The witless lamb may sport upon the plain,
The frisking kid delight the gaping swain;
The wanton *calf* may skip with many a bound,
And my cur, Tray, play deftest feats around;
But neither lamb, nor kid, nor *calf*, nor Tray,
Dance like Buxoma on the first of May. *Id.*

When waggish boys the stunted besom ply,
To rid the slabby pavement; pass not by
Ere thou hast held their hands; some heedless flirt
Will overspread thy *calves* with spattering dirt. *Id.*

Calf, in husbandry. A calf should be allowed to suck and follow its mother during the first six or eight days; after this it begins to eat pretty well. But if the object be to have it quickly fattened for the market, a few raw eggs every day, with boiled milk, and a little bread, will make it excellent veal in four or five weeks. This applies only to such as are designed for the butcher. When intended to be brought up, they ought to have at least two months suck; as the longer they suck, the stronger and larger they grow. Those that are brought forth in April, May, or June, are the most proper for this; when calved later, they do not acquire sufficient strength to support them during the winter. There are two ways of breeding calves intended to be reared. The one is to let the calf run about with its dam all the year round; which is the method in the cheap breeding countries, and is generally allowed to make the best cattle. The other is to take them from the dam after they have sucked about a fortnight; they are then to be taught to drink flat milk, which is to be made but just warm, it being very dangerous to give it them too hot. The best time of weaning calves is from January to May; they should have milk for twelve weeks after; and a fortnight before that is left off, water should be mixed with the milk in larger quantities. When they have been fed on milk for a month, little wisps of hay should be placed about them, in cleft sticks, to induce them to eat. In the beginning of April they should be turned out to grass; only, for a few days, they should be taken in at night, and have milk and water, till they are so able to feed themselves that they do not regard it. The grass must not be too rank, but short and sweet, that they may like it, and yet get it with some labour. Calves should always be weaned at grass; for if it be done with hay and water, they often grow big-bellied and rot. When those are selected which are to be kept as bulls, the rest should be gelded; the sooner the better. Between ten and twenty days is the proper age. About London almost all the calves are fatted for the butcher, as there is a good market for them, and the lands are not so profitable to breed upon as in cheaper countries. The way to make calves fat and fine is to keep them very clean; give them fresh litter every day; and to hang a large chalk-stone, where they can easily get at it to lick it, but out of the way of being fouled by the dung and urine. The coops are to be placed so as not to have too much sun, and so high above the ground that the urine may run off. Some bleed them once when they are a month old, and a second time before they kill them; which greatly whitens the flesh; the bleeding is, by some, repeated oftener, but this is sufficient. Calves are very apt to be loose in their bowels; which wastes and very much injures them. The remedy is to give them, from a horn, chalk scraped among milk. If it does not succeed, give them bole armoniac in large doses, and use the cold bath every morning. If a cow will not let a strange calf suck her, the common method is to rub both her nose and the calf's with a little brandy, which generally reconciles them.

Calf, in zoology. See Bos.

Calf, Golden, an idol, set up and worshiped by the Israelites at the foot of mount Sinai. Our version makes Aaron fashion this calf with a graving tool after he had cast it in a mould: the Geneva translation makes him engrave it first, and cast it afterwards. Others, render the whole verse thus; 'And Aaron received them (the golden earings), and tied them up in a bag, and got them cast into a molten calf;' which version is authorised by the different senses of the word tzur, which signifies to tie up or bind, as well as to shape or form; and of the word cherret, which is used both for a graving tool and a bag. See Aaron. This calf Moses is said to have burnt with fire, ground to powder, and strewed upon the water which the people were to drink. How this could be accomplished has been a question. Many have thought, that as gold is indestructible, it could only be burnt by the miraculous power of God; but M. Stahl conjectures, that Moses dissolved it by means of liver of sulphur. See Chemistry, Index. M. Voltaire, in his Essa on Toleration (in other respects an excelle work), argues much upon the impossibility of grinding to powder so ductile a metal as gold; but any goldsmith could have informed him, that nothing is easier; for the purest gold may at any time be made as brittle as glass, by mixing with it a small quantity of brass; nay, such an antipathy exists between the two metals, that gold, in working, will often become quite unmalleable, by only accidentally touching a piece of brass, while it is warm. And if we suppose the Egyptian goldsmiths to have been as fond of profit, as the modern jewellers of Europe, it is probable they might have put brass pins (a practice now not uncommon) in the joints of the gold earrings, which they had sold or lent to the Hebrew ladies; in which case, the whole mass being melted together, when the calf was made, Moses would require no miraculous power to enable him to grind it to powder; nor would he even need to throw in any additional quantity of brass, to render it brittle, when he burnt, or melted, it, (as perhaps the word should be rendered) with fire.

Calf, Sea. See Phoca.

Calf-Skins, in the leather manufacture, are prepared and dressed by the tanners, skinners, and curriers, who sell them for the use of shoe makers, sadlers, book-binders, and others, who employ them in their several manufactures. The English calf-skin is much valued abroad, and the sale of it very considerable in France and other countries; where attempts have been made to imitate it, but in vain; the smallness and weakness of the calves about Paris, which at fifteen days old are not so big as the English ones when newly calved, being an insurmountable obstacle.

CALFAT, in ornithology, a species of emberiza; rather smaller than the common sparrow: color hoary; vinaceous beneath; head, throat, and margin of the tail, black; bill, legs, and orbits, red. This is le Calfat of Buffon, and the red eyed bunting of Latham; and is found at Madagascar.

CAL'IBER, } Fr. *calibre*; from Lat. *cava-*
Cal'iver, } *libra*; measure of a tube; but
Cal'ibre. } χαλα was an instrument for
measuring. It signifies the bore of fire arms; metaphorically applied to the quality, state, or degree; the size or dimensions of intellect, worth, or estimation.

> They could not but be convinced, that declamations of this kind would rouse him; that he must think, coming from men of their *calibre*, they were highly mischievous.
>
> *Burke. Appeal from the New to the Old Whigs.*

Caliber, or Caliper, properly denotes the diameter of any body; thus we say, two columns of the same caliber; the caliber of a bullet, &c.

Caliber Compasses, Caliper Compasses, or Callipers, a sort of compasses made with arched legs, to take the diameter of round or swelling bodies. Caliber compasses are chiefly used by gunners, for taking the diameters of the parts of a piece of ordnance, or of bombs, bullets, &c. Their legs are therefore circular; and move on an arch of brass, whereon is marked the inches and half inches, to show how far the points of the compasses are opened asunder. The gaugers, also, sometimes use calibers, to embrace the two heads of any cask, in order to find its length. The calibers used by carpenters and joiners, are a piece of board, notched triangular wise in the middle, for taking measures.

Callipers, Gunner's, are instruments in which a right line is so divided as that the first part being equal to the diameter of an iron or leaden ball of one pound weight, the other parts are to the first as the diameters of balls of two, three, or four, &c. pounds are to the diameter of a ball of one pound. The caliber is used by engineers, from the weight of the ball given, to determine its diameter, or vice versa. The gunner's callipers consist of two thin plates of brass joined by a rivet, so as to move quite round each other: the length from the centre of the joint is between six inches and a foot, and the breadth from one to two inches; that of the most convenient size is about nine inches long. Many scales, tables, and proportions &c. may be introduced on this instrument; but none are essential to it, except those for taking the caliber of shot and cannon, and for measuring the magnitude of salient and entering angles. The most complete and best sort of callipers, however, usually contain the following articles, viz. first, the measure of convex diameters in inches, &c; second, of concave diameters; third, the weight of iron shot of given diameters; fourth, the weight of iron shot for given gun bores; fifth, the degrees of a semicircle; sixth, the proportion of troy and avoirdupois weight; seventh, the proportion of English and French feet and pounds weight; eighth, factors used in circular and spherical figures; ninth, tables of the specific gravities and weight of bodies; tenth, tables of the quantity of powder necessary for the proof and service of brass and iron guns; eleventh, rules for computing the number of shot or shells in a complete pile; twelfth, rules for the fall or descent of heavy bodies; thirteenth, rules for the raising of water; fourteenth, rules for firing artillery and mortars; fifteenth, a line of inches; sixteenth, logarithmetic scales of numbers, sines, versed sines, and tangents; seventeenth, a sectoral line of equal parts, or the line of lines; eighteenth, a sectoral line of planes and superficies; and, nineteenth, a sectoral line of solids. See Compasses.

CAL'ICE, *n. s.* Lat. *calix*. A cup; a chalice.

> There is a natural analogy between the ablution of the body and the purification of the soul; between eating the holy bread and drinking the sacred *calice*, and a participation of the body and blood of Christ.
>
> *Taylor.*

CALICHON, an ancient instrument of the lute kind, mounted with five strings, tuned to the following ascending intervals: viz. G, first line bass, C F A and D following.

CAL'ICO, } Fr. *calicut*. A kind
Cal'ico-printer. } of cotton cloth, brought
from Calicut, in Malabar. This cloth is decorated with various colors, forms, and figures, by a process of painting.

> If thou but please to walk into the Pawn
> To buy thee cambrick, *calico*, or lawn,
> If thou the whiteness of the same wouldst prove
> From thy far whiter hand pluck off thy glove;
> And those which by as the beholders stand,
> Will take thy hand for lawn, lawn for thy hand.
>
> *Drayton. Edward IV. to Mrs. Shore.*

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Drayton. Edward IV. to Mrs. Shore.

I wear the hooped petticoat, and am all in *calicoes* what the finest are in silks. It is a dreadful thing to be poor and proud. *Spectator*, No. 292.

As, suppose an ingenious gentleman should write a poem of advice to a *callico-printer*: do you think there is a girl in England, that would wear any thing but the taking of Lisle, or the battle of Oudenarde? They would certainly be all the fashion, till the heroes abroad had cut out some more patterns. I should fancy small skirmishes might do for under petticoats, provided they had a siege for the upper. *Tatler*, No. 3.

Calico, a species of cloth of cotton thread, manufactured, formerly, at Calicut in the East Indies; but we have now in this country established manufactories which equal those in the east. It is said that in this business, and in the printing of calicoes, there are 250,000 persons employed.

CALICUT, or Calicodu, a town and district extending along the coast of Malabar, between the parallels of 10° and 12° N. lat., one of the principal residences of the Nairs, the Calicut rajah, or Zamorin of the Europeans, being one of their chiefs. He is called by his own caste the Tamuri rajah. According to Dr. Buchanan, the origin of the name of this town and district is traced to Cheruman Permal, a usurper who lived 1000 years since, and who, having divided Malabar amongst his nobles, had no principality to bestow on the ancestor of the Tamuri (Zamorin). He therefore gave that chief his sword, with all the territory, in which a cock crowing at a small temple here could be heard; hence these, his original dominions of the Tamuri, were called Calicodu, or cock crowing. The place continued to be the chief residence of the Tamuri Rajah until the Mahommedan invasion, and became a flourishing city, owing to the success that its lords had in war, and the encouragement which they gave to commerce. Tippoo destroyed the town and removed its inhabitants; but, in little more than a year after, the English conquered the province, and the old inhabitants returned with joy and rebuilt the town. See *Buchanan's Journey through Malabar*.

The males of the family of the rajah, are called Tamburans, and the females Tamburetties. Their offspring are generally the children of Namburis, or brahmins of high caste, and sometimes Nairs of the highest rank. Although these females are betrothed in infancy, and marry at the age of ten, they never cohabit with their husbands, which it is said would be esteemed a profanation; but live in the houses of their mothers and brothers, at the expense of the husband, and adopting other men for their companions. No man thus knows his own father. This family pretends to far higher rank than the brahmins. In 1766, according to Mr. Hamilton, 'when Hyder invaded Malabar, the Cochin rajah quietly submitted to pay tribute; while the pride of the Zamorin refused any kind of submission; and, after an unavailing resistance, being made prisoner, set fire to the house in which he was confined, and was burned with it. Several of his personal attendants, who were accidentally excluded when he shut the door, afterwards threw themselves into the flames and perished with their master.' The chiefs of Punatoor, Mannacollatil, Talapuli, Tirumanachery, Agenicutil, and others, were at one time tributary to the Zamorin, and furnished quotas of troops to him in war. He is now entirely a stipendiary of the British government.

The town of Calicut, the capital of the district, stands in lat. 11° 18′ N., long. 75° 50′ E., and contains perhaps, 5,000 houses. It is inhabited chiefly by Mopleys; and is situated on a river navigable by boats 100 miles, by which a great quantity of teak timber is floated down for exports. It also exports areka, cocoa-nuts, pepper, ginger, turmeric, cardemums, coir, and charcoal of the cocoa-nut shell, remarkable for the intense heat it gives; and manufactures piece goods. This port is the principal one of India visited by the Arabs of Muscat. Here Vasco de Gama freighted, in 1498, the first European vessel that ever sailed for the west, with Indian commodities. The sea, however, has long since covered the ancient city, and at very low tides the tops of temples and minarets are said to be seen. The present town stands, low and unsheltered, on the sea shore. The streets are narrow, crowded with people, and dirty. Hyder Ali took the town in 1773, and expelled the merchants and factors, ordering the cocoa-nut trees and sandal wood to be destroyed, and the pepper vines to be rooted out. Tippoo Saib afterwards destroyed it more completely as we have seen. Yet it has since flourished under British domination and protection. It is distant seventy-six miles west of Coimbetore, and ninety-five south-west of Seringapatam. Long. 75° 30′ E., lat 11° 15′ N.

CAL'ID, } See Calx, Calcarious, and
Calid'ity. } Calcine.

Ice will dissolve in any way of heat; for it will dissolve with fire, it will colliquate in water, or warm oil; nor doth it only submit into an actual heat, but not endure the potential *calidity* of many waters. *Browne's Vulgar Errours.*

CALIDÆ Plantæ, from calor, heat; plants that are natives of warm climates; such as those of the East Indies, South America, &c. These plants, says Linnæus, will bear a degree of heat which is 40°, on a scale in which the freezing point is 0, and 100 the heat of boiling water. In the tenth degree of cold they cease to grow, lose their leaves, become barren, and perish.

CALIDRIS, in ornithology, a species of scolopax; the red shank of Latham, totanuss of Brisson, and rotbren of Frisch. The bill is straight and red; legs scarlet, secondary quill-feathers white. Inhabits England and America.

CALIDUCT, in antiquity, a kind of pipe, disposed along the walls of houses or apartments, for conveying heat to several remote parts of the house from one common furnace.

CALIDUS, in entomology, a species of cimex, of a fuscous color above, and testaceous beneath; antennæ black. Found in Africa.

CA'LIF, *n. s.* } Arab. *khalifa*; an heir or
Ca'liph. } successor. A title assumed by the successors of Mahomet among the Saracens, who were vested with absolute power in affairs both religious and civil. Thomson says, it signifies a vicar, a lieutenant, one who holds the place of Mahomet.

Calif. See Caliph

CALIFORNIA, a considerable peninsula on the Pacific Ocean, united on the north to the continent of North America, from which the other part is separated by a narrow sea, called the Gulf of California, and bounded on the south and west by the Pacific Ocean, near 300 leagues in length, and in different places ten, twenty, thirty, and forty leagues wide. It includes a superficial area of above 9000 leagues. This peninsula is said to have been discovered by Sir Francis Drake, and by him called New Albion; and the Gulf of California has been sometimes called the Vermilion Sea, Purple Sea, and Red Sea. In a peninsula of so vast an extent, which reaches nearly from the 23rd to the 45th degree of latitude, the soil and climate must naturally be found to vary. Some parts are continually covered with flowers, while others are inhospitable deserts. According to father Bergert de Schelestat, it is nothing but a chain of barren rocks, covered with briars, without water, without wood, thinly inhabited, and incapable of culture; only the sea-coasts having been discovered till 1788. The heat would be insupportable, if not moderated in the afternoon by the east wind, which blows but seldom, or by the south, which is there more frequent. It rarely rains, and then only in small quantities. The soil is naked rock, or covered with pebbles, fertile in some few places which are watered. It seems to have been produced by a volcano or an earthquake; few fruit trees are found, some forest trees and underwood, towards the south, are all that offer; Indian figs grow wild. Such was the account given; but later observations and discoveries have explored places, particularly in the northern division of this peninsula, where the soil is excellent, and capable of culture; and it is reported, that vines grow naturally on the mountains; that the Jesuits, when they resided there, made wine enough to serve for the consumption of Mexico, of an excellent quality, and in its taste approaching to that of Madeira. Here also grain of every kind is said to flourish well: together with all the roots and fruits of the tropics and such as have been imported for Spain. Fish, game, hares, and rabbits, are very common, and the most enchanting birds. Small gray well flavored partridges feed in companies of three or four hundred in the thickets. In the forests are found gigantic stags, in flocks of forty or fifty at a time. They are brown, with large branches nearly four feet and a-half long, and considered among the most beautiful animals of America. Sebastian Viscaino asserts that he saw some whose branches were nearly nine feet in length. They are very fleet, and can scarcely be taken, except by artifice. Perouse saw them taken in this way:—A stag's head was fixed with its long branches upon an Indian's head, who, armed with a bow and arrows, crept on all fours among the brushwood and long grass, imitating the motion of a stag when feeding. He thus drew around him the unsuspecting herd, and then shot among them with fine effect.

Latterly horses, cattle, sheep, and other domestic animals, have greatly increased here. The coasts furnish great quantities of fish; and in the southern part of the peninsula, the pearl oyster has been an article of flourishing commerce to the colonists. It seems also, from M. Humboldt, that the Indian population had considerably increased in California just before his visit. He says it had more than doubled within the twelve preceding years. Here are eighteeen Spanish missions, founded between the years 1769 and 1798, and containing together a population of from 15 to 17,000 souls. The residence of the governor of the Californias is at Monterey. He has a salary of 4000 piasters; but his authority is not allowed to interfere with the affairs of the missions; except to grant assistance when they require it. His real subjects, therefore, are only about 400 military, distributed in the different presidios, and which keep in subjection about 50,000 wandering Indians. Every parish is governed by two missionaries, whose authority over the converted Indians is absolute; and the domestic economy of each mission differs little from that of a West India plantation. 'The men and women,' according to Perouse, 'are assembled by the sound of a bell; one of the priests conducts them to their work, to church, and to all their other exercises.' Pearl oysters are found on the coast of Old California, and have been, during two centuries, a great inducement to adventurers to visit that barren region. The oysters are most abundant in the southern part, particularly round the islands of Santa Cruz, San Josef, and the bay of Ceralvo. They lie in great numbers on the banks which are called hostias, in three or four fathoms water; and may be seen as plainly as if on the surface of the water. The pearls are large and beautiful, but of an irregular figure; but this fishery has of late years much declined.

The native tribes that inhabit the country acknowledge few regular chiefs. Each father is a prince in his own family, but his power ceases when the children are able to provide for themselves. Each tribe has, nevertheless, sometimes persons appointed, who call assemblies to divide the productions of the earth, regulate the fisheries, and to march at their head, if engaged in war. They owe their rank to the choice of their companions, but they are agents only, not princes. The shade of a tree serves them as a retreat during the day, and in the night they retire to their huts, built on piles at the side of rivers or ponds. Want of provision obliges them often to change their abode, and in severe winters they retire into caves. A girdle and piece of linen, which passes round the body, some ornaments for the head, and a chain of pearls, serve them for dress and finery; some insert colored feathers in holes, which they make in their ears and nostrils; some bind their forehead with bands, like net-work, with which too they cover their arms, adorned with chains of pearls like bracelets. Those who live towards the north, where they have no pearls, dress their heads with shells. The women commonly wear a species of long robe, made of the leaves of palms; some wear nothing but a girdle. These palm-leaves are woven with art, and dyed of different colors; and of them they make baskets, which hold their roots and provisions.

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California on the west, and the continent on the east, is 300 leagues long, and fifty to twenty broad. The chief knowledge we have of it is, that the east coast is high and broken, lined with shoals, to the latitude of 27½°. The only places on the coast (the intendance of Sonoro) are the port of Guitivas, at the mouth of the considerable river Mayo; and that of Guayma at the mouth of the Yaqui. This last is surrounded by elevated hills, and before the entrance is Pelican Island, which is left on the right hand in entering. Ships anchor in five fathoms. The small Spanish village is ten miles up the river. The Colorado, a considerable river, falls into the head of this gulf. The bay of Monterey, the best on the coast of New California, is very indifferent; it is limited by Point Pinos (fir tree) on the south, and point Anno Nueva on the north, distant seven leagues. The whole is bordered by a sandy beach, but entirely exposed, except round Point Pinos, where is a cove, in which a few ships may lie, and this is properly the port of Monterey. The river of that name is an insignificant stream, four leagues north-east of the bay. San Francisco, the most northern of the ports of the Spanish missions, is an excellent harbour, entirely between two low points which expand into a noble basin. On the south shore is the Presidio, and a fort garrisoned by thirty-five men, and a lieutenant of artillery. Sir Francis Drake's Bay is four leagues north of San Francisco, open to the south and south-east, but affording good anchorage on the south shore. It receives a river, whose mouth is crossed by a bar, with a surf that renders its entrance dangerous. Port de la Podega is seven leagues north of Sir Francis Drake's Bay. Cape Mendocino is a promontory, with two elevated points, ten miles asunder, the southernmost resembling Dunnose, on the Isle of Wight. Twenty leagues farther north is Port Trinidad, an open bay, but which receives a river that may be entered by boats, and wood and water are abundant. Cape Blanco, named Cape Orford by Vancouver, is a low point, covered to the water's edge with wood.

CALIGÆ, in Roman antiquity, soldiers shoes, made like sandals, without upper leather to cover the superior part of the foot, though otherwise reaching to the middle of the leg, and fastened with thongs. The sole of the caliga was of wood, like the sabot of the French peasants, and its bottom stuck full of nails. From these caligæ the emperor Caligula took his name, as having been born in the army, and afterwards bred up in the habit of a soldier. According to Du Cange, a sort of caligæ was also worn by monks and bishops, when they celebrated mass pontifically.

CALIGATI, an appellation applied by some ancient writers to the common soldiers in the Roman armies, from the caligæ which they wore.

CALIGA'TION, *n.* }
CALIG'INOUS, *adj.* } Lat. *caligo*, darkness, obscurity, cloudiness; dim.
CALIG'INOUSNESS, *n.* }

Instead of a diminution, or imperfect vision, in the mole, we affirm an abolition, or total privation; instead of *caligation* or dimness, we conclude a cecity or blindness. *Brown.*

CALIGO, or CALIGATIO, in medicine, cloudiness, dimness, or suffusion of sight, caused by the interposition of some opaque substance between the light and the optic nerve. The species of caligo are distinguished according to the situation of the interposed body: thus caligo lentis, caligo corneæ, caligo pupillæ, caligo humorum, and caligo palpebrarum.

CAL'IGRAPHY, or }
CAL'LIGRAPHY, *n.* } From καλος, beautiful, and γραφω, to grave or write. Beautiful writing. See CALLIGRAPHY.
CAL'LIGRAPHIC. }

> This language is incapable of *caligraphy*. *Prideaux.*

> The minutes of acts, &c. were always taken in a kind of cypher, or short-hand; such as the notes of Tyro in Gruter: by which means, the notaries were enabled to keep pace with a speaker, or person who dictated. These notes, being understood by few, were copied over fair, and at length, by persons who had a good hand, for sale, &c. and these were called *calligraphy*. *Dr. A. Rees.*

CALIGULA, the Roman emperor and tyrant, began his reign A. D. 37, with every promising appearance of becoming the real father of his people; but at the end of eight months he was seized with a fever, which, it is thought, left a frenzy on his mind: for his disposition totally changed, and he committed the most atrocious acts of impiety, cruelty, and folly; such as proclaiming his horse consul, feeding it at his table, introducing it to the temple in the vestments of the priests of Jupiter, &c. and causing sacrifices to be offered to himself, his wife, and the horse. After having murdered many of his subjects with his own hands, and caused others to be put to death without any just cause, he was assassinated by a tribune of the people as he came out of the amphitheatre, A. D. 41. in the twenty-ninth year of his age, and the fourth of his reign.—See ROME, HISTORY OF.

CALIN, a compound metal, whereof the Chinese make tea canisters, and the like. The ingredients seem to be lead and tin.

CALIPH. Arab. khalifa, an heir or successor. A title assumed by the successors of Mahomet among the Saracens, who were vested with absolute power in affairs both religious and civil. See KHALIF.

CALIPPIC PERIOD, in chronology, a series of seventy-six years, perpetually recurring, at every repetition of which it was supposed by its inventor Calippus, an Athenian, the mean, new, and full moons, would return to the same day and hour of the solar year. Meton, 100 years before, had invented the period or cycle, of nineteen years; assuming the quantity of the solar year 365*d.* 6*h.* 18′ 56″ 50^{3} 31^{4} 34^{5}; and the lunar month, 29*d.* 12*h.* 45′ 47″ 26^{3} 48^{4} 30^{5}: but Calippus, considering that the Metonic quantity of the solar year was not exact, multiplied Meton's period by four, and thence arose a period of seventy-six years, called the Calippic. The Calippic period, therefore, contains 27,559 days: and since the lunar cycle contains 235 lunations, and the Calippic period is quadruple of this, it contains 940 lunations. This period began in the third year of the 112th Olympiad, or the 4,384th of the Julian period It is demonstrated, however, that the Calippic period itself is not accurate; that is does not bring the new and full moons precisely to their places: 8*h*. 5' 52" 60'" being the excess of 940 lunations above seventy-six solar years; but brings them too late, by a whole day in 225 years.

CALISTE, in conchology, a species of Venus, set with transverse acute striæ, membraneous in front, the anterior slope short, and the posterior aperture obscure. Found on the shores of the Red Sea.

CALIX, or CALYX. See BOTANY.

CALIXTINS, a name given to those, among the Lutherans, who follow the sentiments of Calixtus. See CALIXTUS. Also a sect in Bohemia, derived from the Hussites, about the middle of the fifteenth century, who asserted the use of the cup, as essential to the eucharist. They are not ranked by Romanists in the list of heretics, as in the main they still adhered to the doctrine of Rome. The reformation they aimed at extended only to four articles: 1. To restore the cup to the laity. 2. To subject criminal clergymen to punishment by the civil magistrate. 3. To strip the clergy of their lands, lordships, and all temporal jurisdictions. 4. To grant liberty to all capable priests to preach the word of God.

CALIXTUS (George), a celebrated divine, and professor at Helmstadt, in the Duchy of Brunswick, who died in 1656. He opposed the opinion of St. Augustin, on predestination, and endeavoured to form a union among the various members of the Romish, Lutheran, and reformed churches.

CALK', *v.*
CALK'ER, *n.*
CALK'ING,
CALK'ING-IRON.

Fr. *calage*, oakum or tow; or Sax. *cale*, the keel of a ship; but Swed. *kalfatra*; Dan. *kalfatre*; Bel. *kalfaten*; Fr. *calfater*; Hind. *kalapatta*; Ara. *kalafa*, *kilafat*; καλαφατης, are used in the sense of our word. To stop the seams of a ship; to cram or stuff in materials to keep out the water from leaks and chasms, made by violence or accident. Calking is used in a more general sense: Chambers says, it is a term in painting, used where the backside is covered with black lead, or red chalk, and the lines traced through on a waxed plate, wall, or other matter, by passing lightly over each stroke of the design with a point, which leaves an impression of the color on the plate or wall.

Thy riches, and thy fairs, thy merchandise, thy mariners, and thy pilots, thy *calkers*, and the occupiers of thy merchandise, and all thy men of war, that are in thee, and in all thy company which is in the midst of thee, shall fall into the midst of the seas in the days of thy ruin.

Ezekiel xxvii. 27.

There is a great errour committed in the manner of *calking* his majesty's ships; which, being done with rotten oakum, is the cause they are leaky.

Raleigh's Essays.

So here some pick out bullets from the side;
Some drive old oakum through each seam and rift;
Their left hand does the *calking* iron guide,
The rattling mallet with the right they lift. *Dryden.*

CALKING, a term in painting. See the preceding article.

CALKING, in maritime affairs. See CAULKING.

CALKINS, the prominent parts at the extremities of a horse-shoe, bent downwards, and forged to a sort of point. They are apt to make horses trip; they also occasion bleymes, and ruin the back sinews. If fashioned in form of a hare's ear, and the horn of a horse's heel be pared a little low, they do little damage; whereas, the great square calkins spoil the foot. Calkins are either single or double, that is, at one end of the shoe, or at both: these last are deemed less hurtful, as the horses can tread more even.

CALL', *v.* & *n.*
CALL'ER, *n.*
CALL'ING, *n.*

Καλεω; Lat. *calo*; Welsh and Arm. *galw*; Goth. *kalla*; Swed. *kala*; Teut. and Belg. *kallen*; Heb. *kol*; Ara. *gal*, the voice. To name; to speak aloud; to invite; to mark, signify, or denote. Its religious sense of divine vocation, (for which see below) has but too often been used lightly, by both religious and irreligious men. As used alone with prepositions annexed, and in all the different shades of its acceptations, it is thus exhibited by Dr. Johnson. We shall, however, a little vary his illustrations.

To name; to denominate.

And God *called* the light day, and the darkness he *called* night. *Genesis* i. 5.

Whilst on her father's knee the damsel played,
Patty he fondly *called* the smiling maid. *Gay.*

And what they *call* the prudent part
Is to wear interest next the heart. *Id.*

To summon, or invite, to or from any place, thing, or person. It is often used with local particles, as *up*, *down*, *in*, *out*, *off*.

Of all the day she saw him not with eye;
She trowed he was in som maladie,
For, for no crie, hire maiden coud him *calle*,
He n'olde answer—for nothing that might falle.
Chaucer's Canterbury Tales.

Wherein his weaker wandering steps to guyde,
An auncient matrone she to her does *call*,
Whose sober lookes her wisdome well descryde
Her name was Mercy; well known over all
To be both gratious and eke liberall. *Spenser.*

Be not amazed; *call* all your senses to you; defend my reputation, or bid farewell to your good life for ever. *Shakspeare.*

Why came not the slave back to me when I *called* him. *Id. King Lear.*

Are you *called* forth from out a world of men,
To slay the innocent? *Id. Richard III*

The soul makes use of her memory, to *call* to mind what she is to treat of. *Duppa's Rules to Devotion.*

Or *call up* him that left half told
The story of Cambuscan bold. *Milton.*

Such fine employments our whole days divide;
The salutations of the morning tide,
Call up the sun; those ended, to the hall
We wait the patron, hear the lawyers bawl. *Dryden.*

Then by consent abstain from further toils,
Call off the dogs, and gather up the spoils. *Addison.*

I am *called off* from public dissertations, by a domestic affair of great importance. *Tatler.*

The passions *call away* the thoughts, with incessant importunity, toward the object that incited them.

Watts.

To call back; to revoke; to retract.

Yet he also is wise, and will bring evil, and will not call back his words, but will arise against the house of the evil doers, and against the help of them that work iniquity. *Isaiah* xxxi. 2.

To call for; to demand; to require; to claim.

Madam, his majesty doth *call for* you,
And *for* your grace, and you, my noble lord.
Shakspeare.

You see how men of merit are sought after; the undeserver may sleep, when the man of action is *called for.* *Id.*

Among them he a spirit of phrensy sent,
Who hurt their minds,
And urged you on, with mad desire,
To *call* in haste *for* their destroyer.
Milton's Sampson Agonistes.

For master, or *for* servant here to *call*,
Was all alike, where only two were all.
Dryden's Fables.

I have been accustomed to entwine
My thoughts with Nature rather in the fields,
Than Art in galleries; though a work divine
Calls for my spirit's homage, yet it yields
Less than it feels, because the weapon which it wields
Is of another temper. *Byron's Childe Harold.*

To call in; to resume money at interest.

Horace describes an old usurer, as so charmed with the pleasures of a country life, that, in order to make a purchase, he called in all his money; but what was the event of it? why, in a very few days after, he put it out again. *Addison's Spectator.*

To call in; to resume any thing that is in other hands.

If clipped money be *called in* all at once, and stopped from passing by weight, I fear it will stop trade. *Locke.*

Neither is any thing more cruel and oppressive in the French government, than their practice of *calling in* their money, after they have sunk it very low, and then coining it anew, at a higher value. *Swift.*

To call in; to summon together; to invite.

The heat is past, follow no farther now;
Call in the powers, good cousin Westmoreland.
Shakspeare.

He fears my subjects loyalty,
And now must *call in* strangers.
Denham's Sophy.

To call over; to read aloud a list or muster-roll.

To call out; to challenge; to summon to fight.

When their sovereign's quarrel *calls* 'em *out*
His foes to mortal combat they defy.
Dryden's Virgil.

The verb used in the neutral sense signifies to stop without intention of staying. This meaning probably arises from the custom of denoting one's presence at the door by a call: but it is now used with *in* improperly. This sense is well enough preserved by the particles *on* or *at*; but is forgotten, and the expression made barbarous by *in*.

To make a short visit.

And, as you go, *call on* my brother Quintus,
And pray him, with the tribunes, to come to me.
Ben Jonson.

He ordered her to *call at* his house once a week, which she did for some time after, when he heard no more of her. *Temple.*

That I might begin as near the fountain-head as possible, I first of all *called in* at St. James's. *Addison's Spectator.*

To call on; to solicit for a favor, or a debt.

I would be loth to pay him before his day; what need I be so forward with him, that *calls* not *on* me! *Shakspeare. Henry IV.*

To call on; to repeat solemnly.

Thrice *call upon* my name; thrice beat your breast;
And hail me thrice to everlasting rest. *Dryden.*

The Athenians, when they lost any men at sea, went to the shores, and, *calling* thrice on their name, raised a cenotaph, or empty monument, to their memories. *Broome on the Odyssey.*

To call upon; to implore; to pray to.

Call upon me in the day of trouble; I will deliver thee, and thou shalt glorify me. *Psalm* i. 15.

The neuter substantive from the verb has also a diversity of acceptations, as will be obvious from the subjoined instances.

A vocal address of summons or invitation.

But death comes not at *call*, justice divine
Mends not her slowest pace for prayers or cries.
Milton.

But would you sing, and rival Orpheus' strain,
The wondering forest soon should dance again;
The moving mountains hear the powerfull *call*,
And headlong streams hang listening in their fall.
Pope.

A requisition authoritative and public.

It may be feared, whether our nobility would contentedly suffer themselves to be always at the *call*, and to stand to the sentence, of a number of mean persons. *Hooker's Preface.*

Divine vocation; summons to true religion.

Yet he at length, time to himself best known,
Remembering Abraham, by some wonderous *call*,
May bring them back repentant and sincere. *Milton.*

A summons from heaven; an impulse.

How justly then will impious mortals fall,
Whose pride would soar to heaven without a *call*!
Roscommon.

Those who to empire by dark paths aspire
Still plead a *call* to what they most desire.
Dryden.

St. Paul himself believed he did well, and that he had a *call* to it, when he persecuted the christians, whom he confidently thought in the wrong: but yet it was he, and not they, who were mistaken. *Locke.*

Authority; command.

Oh, Sir! I wish he were within my *call*, or yours.
Denham.

A demand; a claim.

Dependence is a perpetual *call* upon humanity, and a greater incitement to tenderness and pity, than any other motive whatsoever. *Addison's Spectator.*

An instrument to call birds.

For those birds or beasts were made from such pipes or *calls*, as may express the several tones of those creatures, which are represented.
Wilkins' Mathematical Magic.

Calling; vocation; employment.

Now through the land his cure of souls he stretched,
And like a primitive apostle preached;
Still cheerful, ever constant to his *call*,
By many followed, loved by most admired by all.
Dryden.

A nomination.

Upon the sixteenth was held the sergeants' feast at Ely-place, there being nine serjeants of that *call*.
Bacon.

Calling is applied to vocation; profession; trade.

If God has interwoven such a pleasure with our ordinary *calling*, how much superior must that be, which arises from the survey of a pious life? Surely, as much as Christianity is nobler than a trade.
South.

We find ourselves obliged to go on in honest industry in our *callings*. *Rogers.*

I cannot forbear warning you against endeavouring at wit in your sermons; because many of your *calling* have made themselves ridiculous by attempting it.
Swift.

I left no *calling* for this idle trade,
No duty broke, no father disobeyed. *Pope.*

To proper station or employment.

The Gauls found the Roman senators ready to die with honour in their *callings*.

To class of persons united by the same employment or profession.

It may be a caution to all Christian churches and magistrates, not to impose celibacy on whole *callings*, and great multitudes of men or women, who cannot be supposable to have the gift of continence.
Hammond.

Divine vocation; invitation or impulse to the true religion.

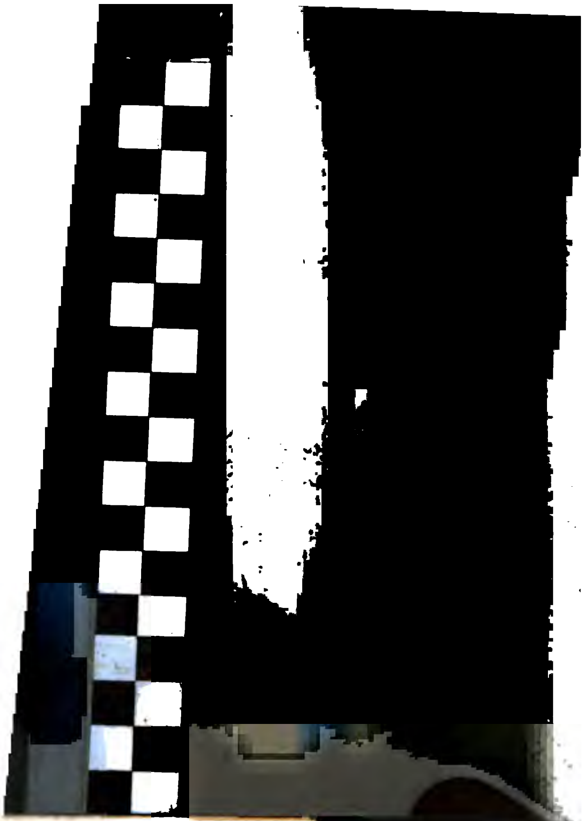
Give all diligence, to make your *calling* and election sure. 2 *Peter*. i. 10.

St. Peter was ignorant of the *calling* of the Gentiles.
Hakewill on Providence.

CALL, among fowlers, the noise or cry of a bird, especially to its young, or to its mate in coupling time. One method of catching partridges is by the natural call of a hen trained for the purpose, which drawing the cocks to her, they are entangled in a net. Different birds require different calls; but most of them are composed of a pipe or reed, with a little leathern bag, somewhat in form of a bellows; which, by the motion given thereto, yields a noise like that of the species of bird to be taken. The call for partridges is formed like a boat bored through, and fitted with a pipe or swan's quill, &c. to be blown with the mouth, to make the noise of the cock partridge, which is very different from the call of the hen. Calls for quails, &c. are made of a leathern purse in shape like a pear, stuffed with horse hair, and fitted at the end with the bone of a cat's, hare's, or coney's leg, formed like a flageolet. They are played, by squeezing the purse in the palm of the hand, at the same time striking on the flageolet part with the thumb, to counterfeit the call of the hen quail.

CALL, among sailors, a sort of whistle or pipe, of silver or brass, used by the boatswain and his mates to summon the sailors to their duty, and direct them in the different employments of the ship.

CALL OF THE HOUSE, in the British Parliament, is the calling over the names of the members, to discover whether there be any in the house not returned by the clerk of the crown; or what members are absent without leave, or just cause. In the former case, every person answers to his



to a recent traveller, for the purpose
charge of any treasure that may be
shore; a circumstance that often hap-
n old mulatto, one of the three or four
e saved, told Mr. Stephenson that he
ing on some timber which had been
rom a ship in the bay, at the time that
: wave of the sea rolled in and buried
, and that he was carried clinging to the
ır to the chapel, a distance of three miles.
s six miles distant from Lima

LA-SUJUNG, or Calla-susung, a town
, in the island of Bouton, seated about a
om the sea, on the top of a small hill sur-
d with cocoa-nut trees.

LLE, in ancient geography, a town of Hi-
pain, seated on an eminence, which hung
he river Durius. It is now called Oporto.

L'LET, *v.* & *n.* Fr. *calotte;* a coif or
erchief for a woman; also a little light cap,
ight-cap worn under a hat. Perhaps the
nguishing badge at one period of lewd and
nous women, for of such persons the word
escriptive. Skinner applies it to an impu-
woman; Dr. Johnson to a trull.

he firste parte of this name we have yfounde:
us ethimologise the secounde:
the firste findir mente, I am right sure,
or *Calot*; for Of, we havin *O*;
d *L* for leude; and *D* for Demenure:
e craft of the enventour ye maie se, lo!
ow one name signifieth personis two,—
colde olde knave, cokcold himself wenying;
nd eke a *calot* of Leude Demyning.

Chaucer's Remedie of Love.

He called her whore: a beggar in his drink
Could not have laid such terms upon his *callet.*

Shakespeare.

Iago. What name fair lady?
Des. Such as, she says, my lord did say I was.
Emil. He called her whore; a beggar in his drink,
Could not have laid such terms upon his *callet.*
Iago. Why did he so?
Des. I do not know, I am sure, I am none such.

Shakespeare. Othello.

CALLEVA, in ancient British geography, a town of the Atrebates; now called Wallingford. See Atrebates.

CALLIAS, the cousin german of Aristides the Just, but of a character the very opposite of that disinterested hero. At the battle of Marathon, Callias being a torch-bearer, and in virtue of his office, having a fillet on his head, one of the Persians took him for a king, and, falling down at his feet, discovered to him a vast quantity of gold hid in a well. Callias not only seized it for his own use, but had the cruelty to kill the poor man, that he might not mention it to others; by which infamous action he entailed on his posterity the name of Laccopluti, or enriched by the well. The only good action recorded of him is his generosity in relieving his brother-in-law Cimon from prison, by paying the heavy fine to which he was so unjustly and ungratefully subjected by the Athenians. See Attica.

CALLIBLEPHARA, from καλλος, beauty, and βλεφαρον, eye-lid; in ancient medical writers, a name given to certain compositions intended to make the eye-lids beautiful.

CALLICARPA. See Johnsonia.

CALLICO. See Calico, and Cotton.

CALLICRATES, an ancient sculptor, who is said to have engraved some of Homer's verses on a grain of millet, made an ivory chariot that might be concealed under the wing of a fly, and an ant of ivory, in which all the members were distinct. He flourished about A. A. C. 472.

CALLICHTHYS, in ichthyology, a species of silurus, having the second dorsal fin one-rayed; a double row of scales on the sides; cirri four.

CALLIGONUM, in botany, a genus of the digynia order, belonging to the polyandria class of plants; and in the natural method ranking under the twelfth order, holoraceæ. The calyx is pentaphyllous, without petals or styles; the fruit hispid and monospermous. There are three species, natives of Ararat, Barbary, and Russia.

CALLIGRAPHY, the art of small beautiful writing. Callicrates is said to have written an elegant distich on a sesamum seed. Peter Bale, in 1575, wrote the Lord's prayer, creed, ten commandments, and two short prayers in Latin, with his own name, motto, day of the month, year of the Lord, and reign of the queen, in the compass of a single penny, inchased in a ring and border of gold, and covered with a crystal, all so accurately written as to be very legible with a magnifying glass.

CALLIMACHUS, a celebrated architect, painter, and sculptor, born at Corinth, who having seen by accident a vessel about which the plant called acanthus had raised its leaves, conceived the idea of forming the Corinthian capital. See Acanthus. He flourished about A. A. C. 540.

Callimachus, a celebrated Greek poet, a native of Cyrene, in Lybia, flourished under Ptolemy Philadelphus, and Ptolemy Euergetes, kings of Egypt, about A. C. 280. He passed, according to Quintilian, for the prince of the Greek elegiac poets. His style is elegant, delicate, and nervous. He wrote a great number of small poems, of which we have only some hymns and epigrams remaining. Catullus has closely imitated him, and translated into Latin verse his small poem on the locks of Berenice. Callimachus was also a grammarian and a learned critic. There is an edition of his remains, by Messrs. Le Fevre, 4to.; and another in 2 vols. 8vo., with notes by Spanheim, Grævius, Bentley, &c. Dr. Tytler of Brechin has translated his poems into English verse.

CALLIMUS, or Calainus, in physiology, a stony substance mentioned by Pliny, found in the cavity of the ætites, or eagle stone. It fills the hollow of the ætites, much as the yoke does the white of an egg. See Ætites.

CALLINICUS of Heliopolis, inventor of a composition to burn in the water, called the Greek fire.

CALLIONYMUS, the dragonet, in ichthyology, a genus of fishes belonging to the order of jugulares. The upper lip is doubled up; the eyes are very near each other; the membrane of the gills has six radii; breathing aperture in the neck; the operculum is shut; the body is naked; and the ventral fins are at a great distance from each other. There are seven species; the prin[illegible]pal are, C. dracunculus, with the first bone of the back fin shorter than its body, which is of a spotted yellow color. It frequents the shores of Genoa and Rome. C. Indicus, has a smooth head, with longitudinal wrinkles; the lower jaw is a little longer than the upper one; the tongue obtuse and emarginated; the apertures of the gills are large: it is of a livid color, and the anus is in the middle of the body. It is a native of Asia. C. lyra, with the first bone of the back fin as long as the body of the animal, and a cirrhus at the anus. It is found as far north as Norway and Spitzbergen, and as far south as the Mediterranean Sea. It is not unfrequent on the Scarborough coast, where it is taken by the hook in thirty or forty fathoms water. It is often found in the stomach of the cod.

CALLIOPE, from καλλος, beauty, and ωψ, voice, in the Pagan mythology, the muse who presides over eloquence and heroic poetry. She was fabled to have a very sweet voice, and was reckoned the first of the nine sisters. Horace styles her Regina:

> Descende cælo, et dic age tibia,
> Regina, longum, Calliope, melos,
> Seu voce nunc mavis acuta,
> Seu fidibus citharave Phœbi.

Her distinguishing office was to record the worthy actions of the living; and, accordingly, she is represented with tablets in her hand.

Calliope, in entomology, a species of papilio, the wings of which are yellow; the anterior pair three streaks; the posterior ones, three bands.

CAL'LIPERS, *n. s.* Of this word I know not the etymology; nor does any thing more probably occur, than that, perhaps, the word is corrupted from *clippers*, instruments with which any thing is clipped, enclosed or embraced. Compasses with bowed shanks.

> *Callipers* measure the distance of any round, cylindrick, conical body; so that when workmen use them, they open the two points to their described width, and turn so much stuff off the intended place, till the two points of the *callipers* fit just over their work. *Moxon's Mechanical Exercises.*

Callipers. See Caliber Compasses.

CALLIPOLIS, in ancient geography, the name of several cities of antiquity, particularly one upon the Hellespont, next the Propontis, and opposite to Lampsacus in Asia; now called Gallipoli.

CALLIPIC Period. See Calippic.

CALLIRRHOE, in ancient geography, called also Enneacrunos, from its nine springs, a fountain not far from Athens, greatly adorned by Pisistratus, where there were several wells, but this was only the running spring. It was also the name of a very fine spring of hot water beyond Jordan, near the Dead Sea, into which it runs.

CALLISIA, in botany, a genus of the monogynia order, in the triandria class of plants; in the natural method of the sixth order, ensatæ: cal. triphyllous; the petals are three; antheræ double; the capsule is bilocular. There is but one species, a native of America and the West Indies.

CALLISTHENES, the philosopher, disciple, and relation of Aristotle, by whose desire he accompanied Alexander the Great in his expeditions: but proving too severe a censurer

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-GRASS, in botany,
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der twelfth, holora-
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celebrated engraver,
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chelle and Rhé. Having

a Nancy in 1631, he proposed that Callot ld represent the new conquest; but Callot ged to be excused; and some courtiers re- ving to oblige him to do it, he answered, that would sooner cut off his thumb, than any thing against the honor of his prince nd country. This excuse the king accepted; nd said, that the duke of Lorraine was happy in having such faithful and affectionate subjects. Callot followed his business so closely, that, though he died at forty-three years of age, he is said to have left of his own execution 1500 pieces. The following are a few of the principal: 1. The Murder of the Innocents. 2. The Marriage of Cana in Galilee. 3. The Passion of Christ, on twelve very small upright plates; first impressions very scarce. 4. St. John in the island of Patmos. 5. The Temptation of St. Anthony. 6. The Punishments; the execution of several criminals. 7. The Miseries of War; in eighteen small plates. 8. The great Fair of Florence. 9. The little Fair, or Players at Bowls. This is one of the scarcest of Callot's prints; and it is very difficult to meet with a fine impression of it.

CALLIXTUS III. a Spaniard, named Alphonso de Borgia, elected Pope in 1455, and died in 1458, after attempting in vain to stir up the princes of Europe against the Turks. Medals were struck in honor of this pope, bearing, as in the annexed figure, his effigy, and the inscription, CALISTUS III. PONT. MAX.

CALLOSA, in entomology, a small Italian species of apis, the color of which is a dark shining blue, with a white lip, and white callous dots on each side of the thorax, in front of the wings.

CAL'LOUS, *adj.* }
CAL'LOUSNESS, }
CALLOS'ITY. }

Lat. *callus*; Fr. *callosité*. Properly that hardness of the foot induced by walking. Indurated; hardened; inexorable; applied to wounds or the edges of ulcers when in an insensible state; to the mind that is sluggish and misapprehensive; to a hard unfeeling heart, dead to the sympathies and tendernesses of human nature.

Licentiousness has so long passed for sharpness of wit, and greatness of mind, that the conscience is grown *callous*. *L'Estrange*.

The wretch is drenched too deep;
His soul is stupid, and his heart asleep;
Fattened in vice, so *callous* and so gross,
He sins, and sees not, senseless of his loss.
Dryden.

The oftener we use the organs of touching, the more of these scales are formed, and the skin becomes the thicker, and so a *callousness* grows upon it. *Cheyne*.

In progress of time, the ulcers became sinuous and *callous*, with induration of the glands. *Wiseman*.

The surgeon ought to vary the diet of his patient, as he finds the fibres loosen too much, are too flaccid, and produce funguses; or as they harden, and produce *callosities*; in the first case, wine and spirituous liquors are useful, in the last hurtful.
Arbuthnot on Diet

If they let go their hope of everlasting life with willingness, and entertain final perdition with exultation, ought they not to be esteemed destitute of common sense, and abandoned to a *callousness* and numbness of soul. *Bentley.*

CAL'LOW. Sax. calu; Swed. *kahl*, *skallig*, from Lat. *calvus*, unfledged; naked. By Lye it is applied to the smoothness and nakedness of unfledged birds; by Drayton to the smoothness or softness of the down; and by Fletcher (Met.) to a newly fledged wing. The 'soft and callow down' of the elegant Drayton, is clearly in allusion to the natural state of the wing in young birds; in which at the same time the down is beautifully 'soft.'

And through his soft and *callow* down doth flow
As loth so soon his presence to forego.
The Owl.

Thy love no time began, no time decays,
But still increaseth with decreasing days:
Where then may we begin, where may we end thy praise?
My *callow* wing, that newly left the nest,
How can it make so high a towering flight?
O depth without a depth! in humble breast,
With praises I admire so wondrous height.
Fletcher's Purple Island, can. 1.

Bursting with kindly rapture, forth disclosed
Their *callow* young. *Milton.*

Then as an eagle, who with pious care
Was beating widely on the wing for prey,
To her now silent airy does repair,
And finds her *callow* infants forced away.
Dryden.

How in small flights they know to try their young,
And teach the *callow* child her parent's song. *Prior.*

So speeds the wily fox, all armed with fear,
Who lately filched the turkey's *callow* care. *Gay.*

And oft the wily dwarf in ambush lay,
And often made the *callow* young his prey,
With slaughtered victims heaped his board, and smiled
To avenge the parents' trespass on the child. *Beattie.*

CALLUS, or CALLOSITY, in a general sense, is any cutaneous, corneous, or osseous hardness, natural or preternatural; but most frequently it signifies the callus generated about the edges of a fracture, provided by nature to preserve the fractured bones, in the situation in which they are replaced by the surgeon. A callus, in this sense, is originally a sort of jelly, or liquid viscous matter, that issues from the small arteries and bony fibres of the divided parts, and fills up the cavities between them. It first appears of a cartilaginous substance; but at length becomes quite bony, and joins the fractured part so firmly together, that the limb will often make greater resistance to any external violence with this part, than with those which were never broken. It is not always in the power of surgeons to restrain or command its growth; for sometimes a broken bone, for want of due action in its vessels, will remain several months disunited; and, at other times, the callus becomes so exuberant as to cause an unsightly enlargement of the bone, around the broken extremities. That preternatural hard and thickened state of the skin which constitutes the disease named a corn, is also termed callus, and to the lamina of horny cuticle which forms on the hands of hard-working people, the same name is applied. Surgeons apply the term callus to the edges of old ulcers, when they become thickened and insensible. This kind of induration is unfavorable to a cure, and should be removed by the knife or caustic, if it cannot be softened by emollient poultices, &c.

CALM', *v. adj.* & *n.*
CALM'LY,
CALM'NESS,
CALMY', *adj.*

Fr. *calme*; Ital. Sp. Port. *calma*, χαλαω; It. *calo*, signify to lower; allay; abate; but possibly Lat. *quietum*, *quietillum*, *quillum*, *tranquillum*, may have produced calm: quiet; still; easy; peaceable; fair; gentle; unmoved. To calm and to becalm differ in some degree; to calm is to stop motion, and to becalm is to withhold from motion.

So shall the sea be *calm* unto us. *Jonah.*

And now they nigh approached to the sted,
Where as those mermaides dwelt: it was a still
And *calmy* bay, on one side sheltered
With the broad shadow of an hoary hill.
Faerie Queene.

It seemeth most agreeable to reason, that the waters rather stood in a quiet *calm*, than that they moved with any raging or overbearing violence.
Raleigh.

Sir, 'tis fit
You have strong party, or defend yourself
By *calmness*, or by absence, all's in anger.
Shakspeare.

I see thou art implacable, more deaf
To prayers than winds or seas; yet winds to seas
Are reconciled at length, and sea to shore;
Thy anger unappeasable still rages
Eternal tempest, never to be *calmed*. *Milton.*

Angling was, after tedious study, a rest to his mind, a cheerer of his spirits, a diverter of sadness, a *calmer* of unquiet thoughts, a moderator of passions, a procurer of contentedness. *Walton.*

But against that thou sittest afloat,
Like Venus in her pearly boat;
The halcyons *calming* all that's nigh,
Betwixt the air and water fly. *Marvell.*

O help! O help! I see it faint
And dye as *calmly* as a saint. *Id*

Much him the honour of his ancient race
Inspired, nor would he his own deeds deface,
And secret joy in his *calm* soul does rise,
That Monk looks on to see how Douglas dies. *Id.*

Great and strange *calms* usually portend the most violent storms; and therefore, since storms and *calms* do always follow one another, certainly, of the two, it is much more eligible to have the storm first, and the *calm* afterwards: since a *calm* before a storm is commonly a peace of a man's own making; but a *calm* after a storm, a peace of God's. *South.*

His curled brows
Frown on the gentle stream, which *calmly* flows.
Denham.

I will bear it
With all the tender sufferance of a friend,
As *calmly* as the wounded patient bears
The artist's hand that ministers his cure.
Otway's Orphan.

I beg the grace,
You would lay by those terrours of your face;
Till *calmness* to your eyes you first restore,
I am afraid, and I can beg no more. *Dryden.*

Jesus, whose bare word checked the sea, as much exerts himself in silencing the tempests, and *calming* the intestine storms, within our breasts.
Decay of Piety.

The queen her speech with *calm* attention hears,
Her eyes restrain the silver-streaming tears. *Pope.*

He willed to stay,
The sacred rites and hecatombs to pay,
And *calm* Minerva's wrath. *Id.*

Religion's cheerful flame her bosom warms,
Calms all her hours, and brightens all her charms. *Gay.*

Gradual sinks the breeze
Into a perfect *calm*; that not a breath
Is heard to quiver through the closing woods,
Or rustling turn the many-twinkling leaves
Of aspin tall. *Thomson's Seasons.*

Affliction is the wholesome soil of virtue,
Where patience, honour, sweet humanity,
Calm fortitude take root, and strongly flourish.
Mallet and Thomson's Alfred.

Hail awful scenes, that *calm* the troubled breast,
And woo the weary to profound repose;
Can passion's wildest uproar lay to rest,
And whisper comfort to the man of woes? *Beattie.*

Clear as its current, glide the sauntering hours
With a *calm* languor, which, though to the eye
Idlesse it seem, hath its morality. *Byron.*

Calm, the state of rest which appears in the air and sea when there is no wind stirring. A calm is more dreaded by a sea-faring man than a storm, if he has a strong ship and sea room; for under the line excessive heat sometimes produces such dead calms, that ships are obliged to stay two or three months without being able to stir. Two opposite winds will sometimes produce a calm. This frequently occurs in the Gulf of Mexico, at no great distance from the shore, where some gust or land wind will so poise the general easterly wind, as to produce a perfect calm. Calms are never so great on the Ocean as on the Mediterranean, as the flux and reflux of the former keep the water in a continual agitation, even where there is no wind; whereas there being no tides in the latter, the calm is sometimes so dead, that the water is as clear as a looking-glass; but such calms are almost constant presages of an approaching storm. On the coasts about Smyrna, a long calm is reputed a prognostic of an earthquake. It is not uncommon for vessels to be becalmed, in the road of the constant Levantine winds, in places where they ride near the land. Thus between the two capes of Cartooche toward the main, and Cape Antonia in Cuba, the sea is narrow, and there is often a calm produced by some gust of a land wind that poises the Levantine wind, and renders the whole perfectly still for two or three days. In this case the current that runs here is of use to the vessels, if it sets right; when it sets easterly, a ship will have a passage in three or four days to the Havannah; but if otherwise, it is often a fortnight or three weeks' sail, the ship being embayed in the Gulf of Mexico. When the weather is perfectly calm, the sailors try which way the current sets, by sending out a boat, which will ride motionless though there is no bottom to be found, as well as if secured by the strongest anchor. Their method is this: they row the boat to a little distance from the ship, and then throw over their plummet, which is about forty pounds weight; they let this sink to about 200 fathoms; and then, though it never reaches the bottom, the boat will turn head against the current, and ride as firmly as possible.

Calm Latitudes, in sea language, are situated in the Atlantic Ocean, between the tropic of Cancer and the latitude of 29° north, or they denote the space that lies between the trade and variable winds, because it is frequently subject to calms of long duration.

CALMAR, a sea-port of Sweden, in the province of Smaland, 150 miles south-west of Stockholm, and forty from Carlscroon. It is divided into two towns, the old and the new. The new town is built a little way from the other, and is large and handsome.

CALMET (Augustine), one of the most learned and laborious writers of the eighteenth century, was born at Mesnil le Horgue, in France, in 1672, and took the habit of the Benedictines in 1688. Having passed through the usual course of philosophy and theology, he was employed in teaching the younger part of the community, till, in 1704, he settled as sub-prior in the abbey of Munster, in Alsace, where he presided over an academy of eight or ten monks devoted to the study of the Scriptures. There he composed his commentaries on the Scriptures, published in French from 1707 to 1716. In 1718 he was appointed to the abbacy of St. Leopold in Nancy; and in 1728 he was elected abbot of Senones. The title of a bishop in partibus was offered him, but he declined accepting it. He wrote, 1. Commentaire Litteral sur tous les Livres de l'Ancien et du Nouveau Testament, 23 vols. 4to. 1707-1716, reprinted in 26 vols. 4to., and also in 9 vols. fol.; abridged in 14 vols. 4to. by Rondet, and a new edition of the abridgment in 17 vols. 4to. Avignon, 1767-73. 2. The Dissertations and Prefaces, published separately, 2 vols. 4to. Paris, 1720. 3. Histoire de l'Ancien et du Nouveau Testament, intended as an introduction to Fleury's Ecclesiastical History, 2 and 4 vols. 4to., and 5 and 7 vols. 12mo, 4. Dictionnaire Historique, Critique, et Chronologique, de la Bible, 4 vols. fol. Paris, 1730, translated into English by Samuel D'Oyly, 3 vols. fol. London, 1732, and a new edition in 4to. 1793, &c. 5. Histoire Ecclesiastique et Civile de la Lorraine, 3 vols. fol. reprinted in 5 vols. fol. 1745. 6. Bibliotheque des Ecrivains de Lorraine, fol. 1751. 7. Histoire Universelle Sacrée et Profane. 15 vols. 4to. &c.

CALMUCKS. See Kalmucks.

CALNE, a town of Wiltshire, seated on the river of the same name. It had a palace of the West Saxon kings. Its chief manufacture is cloth. It sends one member to parliament; and lies twelve miles west of Marlborough, and eighty-eight west of London.

CALNEA, in ancient geography, a city in the land of Shinar, built by Nimrod, and the last city mentioned (Gen. x. 10.) as belonging to his kingdom. It is believed to be the same with Calno mentioned in Isaiah x. 9, and with Canneh in Ezekiel xxvii. 23. It is observed that it must have been situated in Mesopotamia, since these prophets join it with Haran, Eden, Assyria, and Chilmad, which carried on a trade with Tyre. It is said by Chaldee interpreters, as well as by Eusebius and Jerome, to be the same with Ctesiphon, upon the Tigris, about three miles distant from Seleucia, and that for some time it was the capital city of the Parthians.

CALODENDRUM, in botany, a genus of the class pentandria, order digynia. The essential characters are CAL. five-parted: COR. petals five; nectaries five: PER. capsule five-celled and five-angled; but the corolla, nectary, and stamens so often differ in the number of their parts, that the capsule may be said to be the only essential. There is but one species: a native of the Cape.

ALOGERI, καλογεροι, in church history, monks of the Greek church, divided into three degrees; viz. the archari, or novices; the microchemi, or the ordinary professed; and the megalochemi, or more perfect; they are likewise divided into cœnobites, anchorites, and recluses. The cœnobites are employed in reciting their offices from midnight to sun-set; they are obliged to make three genuflexions at the door of the choir, and returning, to bow to the right and to the left, to their brethren. The anchorites retire from the world, and live in hermitages in the neighbourhood of the monasteries; they cultivate a little spot of ground, and never go out but on Sundays and holidays, to perform their devotions at the next monastery. The recluses shut themselves up in grottoes and caverns on the tops of mountains, which they never leave, abandoning themselves entirely to Providence: they live on the alms sent them by the neighbouring monasteries. Some reckon the Caloyers a branch of the Calogeri.

CALOMEL, chloride of mercury, frequently called mild muriate, or dulcified sublimate of mercury.

CALOPHYLLUM, in botany, a genus of the monogynia order, and polyandria class of plants: COR. tetrapetalous: CAL. tetraphyllous and colored; the fruit a globose plum. There are two species, both lofty trees, indigenous to India; from one of which, C. inophyllum, upon incision of its bark, exudes the resin called tacamahac.

CALOPUS, in zoology, a genus of the class insecta, order coleoptera. Antennas filiform; feelers four, the fore-ones clavate, the hind-ones filiform: thorax gibbous; wing-cases linear. Three species; two European, one American.

CALORIMETER, an instrument first contrived by Lavoisier and Laplace, to measure the heat given out by a body in cooling. It consists of three vessels, placed one within the other, so as to leave two cavities between them; a frame of iron net-work being suspended in the middle of the innermost vessel, to hold the heated body. The two exterior concentric interstices are filled with bruised ice, by the fusion of which the heat given out by the central hot body is measured. The water runs off through the bottom, which terminates in the shape of a funnel, with a stopcock.

CALOTE, a species of skull-cap worn under the hat by officers and soldiers of the French cavalry, and which is proof against a sabre or a sword. Calotes are usually made of iron, or dressed leather. Those delivered out to the troops are made of iron.

CALOTE, a term used in the French service for the lieutenant's court, at which the first lieutenant of the regiment, for the time being, always presided. It took cognizance, as a court of honor, of all disputes in which the laws of honor or of good breeding had been violated. Our regimental committees resemble the calote, especially with regard to the expulsion of an officer, or the sending of him to Coventry.

CALOTES, in zoology, a species of lacerta, with a round long tail; the fore part of the back, and hinder part of the head being dentated Found in the island of Ceylon.

CALOTTE', *n. s.* French. See CALLET.

CALO'YERS, *n. s.* Καλος. Monks of the Greek church.

> Temperate as *caloyers* in their secret cells.
>
> *Madden on Boulter.*

CALOYERS are of the order of St. Basil. A numerous body of them live on Mount Athos, and never marry, though others of that church do. They abstain from flesh, and fare very hardly, their ordinary meals being olives pickled when they are ripe. They are about 6000 in all, and inhabit several parts of the mountain. They are so respected that the Turks themselves will often send them alms. These monks are not idle, but labor with the axe, spade, and sickle, dressing themselves like hermits. Formerly they had fine Greek MSS., but they are now become so illiterate, that they can scarcely read or write. They live to a great age. See CALOGERI.

CALPE, a mountain of Andalusia in Spain; at the foot of which, towards the sea, stands Gibraltar. It is half a league in height towards the land, and so steep that there is no approaching it on that side. It was anciently reckoned one of the pillars of Hercules; Abyla being the other.

CALPHURNIA, a female orator of ancient Rome, who pleaded her own causes before the senate; but is said to have proved so troublesome, that they made a law, that thenceforward no woman should be allowed to plead.

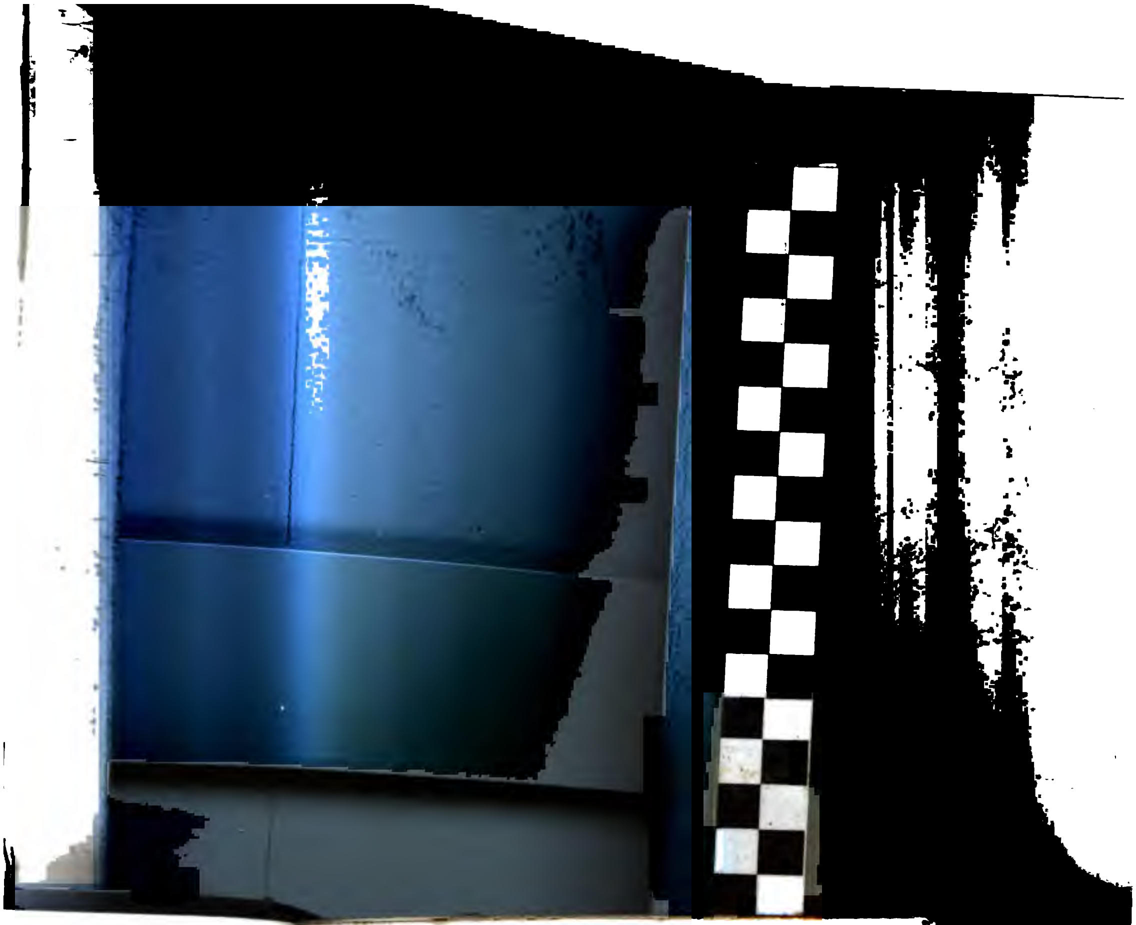
CALPHURNIUS (Titus), a Latin poet of Sicily, who lived under the emperor Carus and his son. Seven of his eclogues are extant.

CALTHA, in botany, marsh marigold, a genus of the monogynia order, in the polyandria class of plants, No calyx; five petals; no nectaria; capsules many, and polyspermous. There are but two species known; viz. 1. C. palustris, with stem erect; found in our own marshes: 2. C. natans, with procumbent floating stem; a native of Siberia. The flowers gathered before they expand, and preserved in salted vinegar, are a good substitute for capers. The juice of the petals, boiled with alum, stains paper yellow. Goats and sheep eat this plant; horses, cows, and swine, refuse it.

CALTROP, in botany. See TRIBULUS.

CAL'TROPS, *n. s.* Sax. colꞇnæppe; an instrument made with three spikes, so that which way soever it falls to the ground, one of them points upright, to wound horses feet.—A plant common in France, Spain, and Italy, where it grows among corn, and is very troublesome; for the fruit being armed with strong prickles, run into the feet of the cattle. This is certainly the plant mentioned in Virgil's Georgics, under the name of tribulus.

> The ground about was thick sown with *caltrops*, which very much incommoded the shoeless Moors.
>
> *Dr. Addison's Account of Tangiers*



[illegible] in which the laws of honor
[illegible] been violated. Our re-
[illegible] resemble the above, espe-
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[illegible] Coventry.

[illegible] in zoology, a species of lacerta,
[illegible] the fore part of the back,
[illegible] head being dentated
[illegible] of Ceylon.

[illegible] French. See Callet.

[illegible] Monks of the
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[illegible] order of St. Basil. A
[illegible] Mount Athos,
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Caltrops, in military affairs, an instrument with four iron points, disposed in an angular form, so that three of them are always on the ground, and the fourth pointing upwards. They are scattered over the ground where the enemy's cavalry is to pass, in order to embarrass them.

CALVA, or Calvaria, from calvus, bald; the scalp or upper part of the cranium, comprehending all above the eyes, temples, ears, and occipital eminence.

CALVART (Denis), a celebrated painter, born at Antwerp in 1552. He studied painting under Fontana and Sabbatini. He opened a school at Bologna, which became celebrated; and from which proceeded Guido, Albani, and other great masters. Calvart was well skilled in architecture, perspective, and anatomy, which he considered as necessary to a painter, and taught to his pupils. His principal works are at Bologna, Rome, and Reggio. He died at Bologna, in 1619.

CALVARY, from calvaria, i. e. the place of a skull, called also Golgotha, which signifies the same, a hill of Judea, west of Jerusalem, on the outside of the city, where our Saviour was crucified, and where malefactors were commonly executed. Some derive the name from the resemblance of the hill to a man's head; others from its baldness, as it was said to be destitute of verdure; but it is more probable, that the hill derived its name from the many skulls of those executed, being carelessly tossed about upon it. Tradition says Adam was buried upon it. The British Princess Helena, the mother of Constantine the Great, about A. D. 330, erected a magnificent church over our Saviour's sepulchre, near it, which is still visited by superstitious pilgrims.

Calvary, in heraldry, a cross, so called because it resembles the cross on which our Saviour suffered. It is always set upon steps.

Calvary, in the customs of the Roman Catholic church, is a term sometimes used for a kind of chapel devotion, raised on a hillock near a city; in memory of the place where Jesus Christ was crucified near Jerusalem. Such was the Calvary of St. Valerian, near Paris: it was accompained with several little chapels, in each of which was represented in sculpture one of the mysteries of the passion. The Roman Catholics vindicate these pictorial exhibitions of the mysteries of religion, as justifiable upon the same principle as any other mode of bringing the facts memorialised upon the eye of the mind; and as particularly useful to those classes of society whose inclinations or avocations will permit them to read or think but little.

CALVERT, a county of the United States, in the Western Shore of Maryland; bounded on the east by the Chesapeake; on the north by Anne-Arundel county; and on the south and west by the river Patuxent. It is thirty-three miles and a half long from the mouth of the Patuxent to Lion's Creek, and nineteen and a half broad. The surface is hilly and the soil sandy; but it produces good crops of Indian corn, though the tobacco is of an inferior quality.

Calvert, George, afterwards Lord Baltimore, was born at Kiplin, in Yorkshire, about 1582, and educated at Oxford, where he took the degree of B. A. He was made secretary to Sir Robert Cecil; he was afterwards knighted, and in 1618 appointed one of the principal secretaries of state. But after he had enjoyed that office about five years, he resigned it, telling king James, that he was become a Roman Catholic,—that he must either be wanting to his trust, or violate his conscience in discharging his office. This ingenuous confession so affected the king, that he continued him privy counsellor all his reign, and created him baron Baltimore. He afterwards obtained a grant of a country on the north part of Virginia from Charles I. who called it Maryland, in honor of his queen; but he died in April, 1632, aged 50, before the patent was made out. It was, however, filled up to his son Cecil, lord Baltimore; and bears date June 20th, 1632. It was held from the crown as part of the manor of Windsor, on one singular condition, viz. to present two Indian arrows yearly, on Easter Tuesday, at the castle, where they are kept and shown to visitors. His lordship wrote, 1. A Latin poem on the death of Sir Henry Upton. 2. Speeches in Parliament. 3. Various Letters of State. 4. The Answer of Tom Tell-Truth. 5. The Practice of Princes. And, 6. The Lamentation of the Kirk.

CALVI (Lazzaro), was born at Genoa, and was one of the scholars of Perino del Vaga, as was his brother Panteolo, with whom he worked. In the Palavicini palace, they painted the celebrated continence of Scipio. Envy worked so strongly in the breast of Lazzaro, that he had recourse to the foulest arts to avenge himself of those who were his rivals. Among those who fell victims to his unprincipled spirit, was Giacomo Bargone, whom he poisoned; and against other artists he contrived the basest machinations, in order to effect their ruin. At length he was employed to paint, in connexion with Andrea Semini and Luca Cambiasi, a picture of the birth of John the Baptist; but though Calvi exercised his best powers, he fell short of Cambiasi, and Lazzaro, in a fit of mortification, went to sea. He followed that occupation twenty years, and then returned to his original profession, which he practised till his eighty-fifth year. He died in 1606 aged 105.

CALVILLE', *n. s.* French; a sort of apple.

CALVIN, or Cauvin, (John), a celebrated reformer of the sixteenth century, whose religious tenets have given rise to a large and respectable party among Protestants, called Calvinists, (which see), was born at Noyon, a city of Picardy, July 10th, 1509. His father was a cooper, in respectable but not affluent circumstances, and sufficiently esteemed in the neighbourhood to be able to introduce his son into the Montmor family; with the children of which he was educated at his father's expense. He was sent with the children of his patron to the College de la Marche, at Paris, then under the regency of Maturin Cordier, and soon became distinguished for his application to study. From the College of La Marche he was removed to that of Mortaign, when he entered upon the pursuit of dialectics and philosophy, under the tuition of a learned Spaniard. In 1529 his father had sufficient interest with the bishop of Noyon to procure the young student a benefice in the cathedral church of that city, and the rectory of Pont L'Eveque, the parish in which he was born. Here, though not ordained, he is said to have preached frequently; but becoming intimate with a protestant relative, Pierre Robert Olivetan, author of a French translation of the Scriptures, he felt dissatisfied with his station, and gradually resolved to quit the Romish communion. His father, at about the same period, began to apprehend that he could better ensure his advancement in life in the law than in the church. He now, therefore, removed to Orleans, and applied himself, with his characteristic ardor, to the lectures of Pierre de L'Etoile, a celebrated civilian, afterwards president of the parliament of Paris. Here he received a doctor's degree; studied the Scriptures as well as the law very closely, and is said by his late night hours to have laid the foundation of a weakness in his stomach, which finally shortened his days. His legal attainments were so universally acknowledged at Orleans, that, in the absence of the professors, he frequently lectured for them before the university. Scaliger says, that at the age of twenty-two he was the most learned man in Europe.

To complete his education for the law, he removed for a short time from Orleans to Bourges, where, while attending the lectures of Andrè Alciat, he contracted an intimate acquaintance with Melchiar Wolmar, the Greek professor of the university. In acknowledgment for Wolmar's instruction in that language, Calvin afterwards dedicated to him his Commentary on the Second Epistle to the Corinthians; and in this neighbourhood he is said to have been occasionally engaged in village preaching.

His father died while he was in his twenty-fourth year, and the circumstance compelled him to close his college life, and, after a short residence at Noyon, to proceed to Paris. In the title page of his first work, a Commentary on Seneca's De Clementia, which he published here in 1533, we first find that slight change in his name, which has been unfairly adverted to. 'In reality,' says Mr. Drelincourt, 'it is very inconsiderable, or rather nothing at all: for being to turn Cauvin (his family name) into Latin, if one would give it an air and termination suitable to the genius of the language, how can one turn it otherwise than by Calvinus?' And 'his first work being written in Latin, and he thereby known by the name of Calvinus, if after that, when he wrote in French, he had used any other name but that of Calvin, the work might have been taken for another man's.' The friends of the reformed religion now heard of his attachment to their system, and induced him to relinquish all secular pursuits. His zeal and sincerity was soon put to the test. Having supplied his friend Nicholas Cop, rector of l'Academie de Paris, with hints for a speech, in which were some severe reflections on popery, the rector, at the instigation of the Sorbonne, was summoned before the parliament, and only eluded punishment by withdrawing to Basil. Calvin was also advised to take flight; and had scarcely quitted Paris when a warrant was issued for his apprehension, and his apartments were searched by the bailiff Marin, one of the most relentless persecutors of the age. His papers disclosed a number of the names of the Protestants who were about, it is said, to be proscribed, when the queen of Navarre interposed in their favor, allayed the storm for a time, and even ventured to recal Calvin. Prudence, however, dictated his retreat from the eye of the hostile authorities; and he chose Saintonge for his place of retirement, where he employed himself in the composition of homilies adapted to the capacities of the common people. He also visited, at this time, the aged Jacques Le Fevre d'Estaples, formerly the tutor of the children of Francis I. who had retired under the protection of the queen of Navarre to Nerac. The worthy old confessor welcomed him heartily, and predicted his future celebrity as an instrument of establishing the true religion. In 1534 Calvin visited Paris, partly with a view to meet the celebrated Michael Servetus, whose opinions respecting the Trinity were now becoming known. It was a journey of some danger, as this year was disgraced by many cruelties inflicted on the reformed at Paris; but Servetus did not appear. The king, it is said, being particularly exasperated at an attack on the mass, which was nailed to the door of the Louvre, went bareheaded with his sons in procession, as an expiation of the crime, ordered eighty of the reformers to be burnt alive in the most conspicuous parts of the capital, and declared that if his own sons were to become infected with their detestable heresy, they should suffer the same fate.

Calvin now determined to quit France, which he did; having first published a treatise, called Psychopannychiam, against the sentiments of those who maintain that the soul sleeps between death and the resurrection. He followed his friend Cop to Basil, where he studied the Hebrew language, and brought together the materials of his great work, the Institutions of the Christian Religion. It was designed as an apology for his persecuted brethren; openly avowing their real differences with the Church of Rome, but defending them from the imputation of teaching the levelling doctrines of the Anabaptists. The first edition, which it is probable was written both in French and Latin, was published in 1535, in 8vo. being only a rough sketch or outline of what is known at present as this work. The second edition appeared in 1536 at Strasburgh, in folio, and was both larger and more correct than the first. The third edition, still more complete, was printed at the same place in 1543. A fourth edition came out, with considerable improvements; and a fifth corrected edition in 4to was printed in 1550 at Geneva, having two indexes. In 1558 the Latin and French editions both received the author's final revision.

The doctrinal peculiarities of this work, we are not engaged, as encyclopædists, to vindicate; few modern Protestants espouse them all: but the palm of erudite learning, profound Scripture knowledge, and superior logical arrangements was universally awarded to its author. Its Latinity has been generally admired, and especially the introductory address to Francis I. Bayle quotes the remarkable testimony of two cele-

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synod of Berne. This he did to the full ɹsfaction of that body; procured in less than ɾear after his first coming to Geneva the formal ɹunciation of popery, by the public authoriɛs, and proceeded boldly with his colleagues in ıe reform of the public morals. He thus roused the enmity of many influential persons; ɹnd an unhappy schism arising between the church of Berne and that of Geneva, as to the mode of celebrating the eucharist, these parties did not fail to inflame it. By the synod of Lausanne it was at last decreed that all the churches ought to use unleavened bread at the Lord's supper; Calvin and Farel hesitated to yield obedience to this decree: the result was an order from the council of Geneva for these faithful ministers forthwith to leave the town. 'Ah!' said Calvin, 'had I served men, I should have been poorly recompensed; but I have served a master, who, far from forgetting his true servants, pays them where he has no obligation.'

Our reformer retired to Strasburgh, where, by the influence of Bucer, he was immediately appointed pastor of a church, and professor of theology. Here he composed his Treatise on the Lord's Supper, and an eloquent reply to Cardinal Sadolet, who endeavoured to recal the Genevese to the Catholic church. He also reclaimed many of the people from the Anabaptist errors. In 1541 he attended the diet, convoked to meet at Worms, and afterwards at Ratisbon: and here he was introduced to Melancthon, who ever after spoke of him as 'the theologian' of the day.

The same year the Genevese evinced their regret at his absence by publicly voting for his recal: and the inhabitants of Strasburgh, though they finally relinquished him to the entreaties of the council of that city, bestowed on him the freedom of their own, and offered to continue his emoluments after his return to Geneva. This took place in the latter part of the year 1541; and his system of ecclesiastical discipline, called the Consistory, was established at Geneva by order of the general council, dated the 20th of November in that year. Shortly after his return, he published a Catechism in Latin and French. 'During a fortnight in each month,' we are told, 'he preached every day; gave three lectures in theology every week; assisted at all the deliberations of the consistory, and at the meetings of the pastors; met the congregation every Friday; instructed the French churches by the frequent advices which they solicited from him; defended the Reformation against the attacks of its enemies, and particularly those of the French priests; was forced to repel his numerous antagonists, by various books which he composed for that purpose; and found time to publish several other works, which, by their solidity and depth, are calculated for the instruction of every age.'

In 1543 he composed for the church of Geneva a Liturgy, accompanied with Directions for Celebrating the Ordinances of Baptism and the Lord's Supper. His personal and official character were now held in such high esteem in that city, that its entire affairs, civil and ecclesiastical, were moulded by him: and the snares of secular influence and earthly greatness surrounded him on every side. The learned Castalio having endeavoured to disseminate some opinions differing from those of our reformer, on the descent of Christ into hell, was banished from Geneva. A James Grant is said to have been condemned to death in 1547 for impiety, treason, and speaking disrespectfully of Calvin; and in 1553 drew on the memorable persecution of Servetus by the public authorities.

Previously to this last event, we find him engaged in controversy with the decisions of the council of Trent, in a work called The Antidote: with the divines of Rouen, who had renewed the heresy of Carpocrates on that church, in composing his commentaries in the epistle of St. Paul; and in a correspondence with Luther, Bucer, and all the principal reformers. In 1548 he was joined in the public affairs by the celebrated Beza. He also had a long controversy with Jerome Bolzec, a Carmelite friar, who began to teach the sentiments afterwards espoused by Arminius. The celebrated John Knox visited him at about this period. 'Calvin' says Dr. M'Crie, 'was then in the zenith of his reputation and usefulness, had completed the ecclesiastical establishment of that city; and, having surmounted the opposition raised by those who envied his authority, or disliked his system of doctrine and discipline, was securely seated in the affections of the citizens. His writings were already translated into the different languages of Europe; and Geneva was thronged with strangers from Germany, France, Poland, Hungary, and even from Spain and Italy, who came to consult him about the advancement of the Reformation, or to find shelter from the persecutions to which they were exposed in their native countries. Calvin was respected by none more than by the Protestants of England; and, at the desire of archbishop Cranmer, he had imparted to the protector Somerset, and to Edward VI. his advice as to the best method of advancing the Reformation in that kingdom. Knox was affectionately received by him as a refugee from England; and an intimate friendship was soon formed between them, which subsisted until the death of Calvin in 1564. They were nearly of the same age; and there was a striking similarity in their sentiments and in the more prominent features of their character. The Genevan Reformer was highly pleased with the piety and talents of Knox, who, in his turn, entertained a greater esteem and deference for Calvin than for any other of the Reformers.

Servetus was a Spanish physician, who had acquired a respectable professional character at Vienne; his works Restitutio Christianismi, De Trinitatis Erroribus; et in Ptolemeum Commentarius had also with his heretical pravity established his undoubted claims to considerable learning. It was no palliation of the persecuting zeal of Calvin that the Papists had already condemned some of their performances to be burnt by heresy. Calvin instigated the council of Geneva to sieze, imprison, and finally put the author to a cruel death.

This disgraceful tale has been amplified by the assertion that Calvin wrote to the magistrates of Vienne to procure the arrest of Servetus, that he had thirsted for years for his blood, &c. There is, perhaps, no clear evidence of this: the fact seems to be that Servetus was passing through Geneva to Naples, with a view to find a retreat from persecution, when he fell thus unhappily into its fangs. Nor do we know that the matter is much extenuated (excused it never can be) by the fact that Bucer, and even Melancthon, approved of the conduct of our reformer in instigating the sacrifice of Servetus. The plain truth is, that Calvin was seduced by his dangerous worldly influence, to imagine that he could thus serve the cause of his peaceful and benevolent master: and that he in this instance must stand recorded to posterity in the unholy character of a persecutor unto blood. 'He acted in this case,' say his apologists, 'as he uniformly did, from no party view, or paltry resentments, but from a strong sense of duty, and an ardent love to truth. What he did in it, he did with his characteristic steadiness and zeal: and it is evident, that his chief anxiety was, not to punish Servetus, but to make him retract his error, a design which was frustrated by the obstinacy, the violence, and the impious language, of Servetus himself.' Moreover, persecution we are told was the sin of the age. No part of this apology has, we confess, much weight with us. The spirit of persecution to which the reformers at any time lent themselves was in them the more inexcusable, as they had been themselves, and saw their brethren daily, sufferers from this very spirit. It was the sin against which God in the judgments and trials of that age peculiarly warned them; no admiration of what they effected should make us palliate the enormity of their thus manifesting the disposition of him who was 'a destroyer' from the beginning; and it must have been the pride of the zealot, and the interests of the party being injured, rather than any pure or real love of truth, that ever prompted these bloody deeds: of which in this instance we speak the more freely, because we honor Calvin much.

After this event Calvin's life is chequered with but few matters of public importance. His efforts at promoting a universal Christian discipline at Geneva were often impeded; and his extensive projects for the establishment of his own views of ecclesiastical government, in other countries, not very successful. He was deeply afflicted by the frequent persecution of his brethren in France, and by the disunion among the Protestants of various parts of Europe: the latter he earnestly sought to heal; and certainly, by his talents and remonstrances, abated the violence of the former.

In February, 1564, this great man became conscious of his approaching death; and on the 2d of that month preached his last sermon, and delivered his last lecture in the day. Being visited on the 10th of March by Beza and several private friends, he spoke of his expected departure with great composure and solemnity; and having been carried to the council on the 27th, he took his leave of them with much affection, declaring that he never more expected to appear in that place. On the 2d of April, though much reduced, he attended the

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public services of his church, and received the sacrament from the hands of Beza. On the 28th, all the clergy of the town and neighbourhood being assembled in the room, he gave them a parting address, exhorting them to steadfastness and perseverance, and instancing his own remarkable success as an encouragement to their labors. His remaining days were devoted to private duties and meditation. He died with great calmness on the 24th of May.

The works and system of Calvin will ever claim for him a distinguished place in the history of modern Christianity. No writer of the Reformation made so many converts to his peculiar views; no one name has designated the religious system of such multitudes. His treatises when all collected in 1560 formed nine volumes folio. For an abstract of his views see below.

CALVINISM, in modern ecclesiastical history, designates certain prominent articles of belief, rather than the entire religious creed of those who avow the system, and it is not strictly the name of a sect, for it is connected with no peculiar form of church government or discipline, but prevails among Episcopalians, Presbyterians, Independents, and Methodists. The Calvinistic Baptists are also numerous.

Many writers, with Dr. Evans (Sketch of the Different Denominations of the Christian World), speak of the tenets of Calvinism as, predestination, original sin, particular redemption, irresistible grace, and the final perseverance of the people of God: sometimes called by theologians the five points. But the doctrine of original sin is by no means peculiar to the Calvinists. It is, with some modifications, a sentiment held by most protestant sects. This author adds, as the Calvinists differ among themselves in the explication of these tenets, it would be difficult to give a specific account of them. Generally speaking, however, they comprehend the following propositions. 1. That God has chosen a certain number in Christ to everlasting glory, before the foundation of the world, according to his immutable purpose, and of his free grace and love, without the least foresight of faith, good works, or any conditions performed by the creature; and that the rest of mankind he was pleased to pass by, and ordain them to dishonor and wrath for their sins, to the praise of his vindictive justice. 2. That Jesus Christ, by his death and sufferings, made an atonement only for the sins of the elect. 3. That mankind are totally depraved in consequence of the fall; and, by virtue of Adam's being their public head, the guilt of his sin was imputed, and a corrupt nature conveyed to all his posterity, from which proceed all actual transgressions; and that by sin we are made subject to death, and all miseries, temporal, spiritual, and eternal. 4. That all whom God has predestined to life, he is pleased, in his appointed time, effectually to call by his word and spirit out of that state of sin and death, in which they are by nature, to grace and salvation by Jesus Christ. And 5. That those whom God has effectually called and sanctified by his spirit shall never finally fall from a state of grace. Some have supposed that the trinity was one of the five points; but this is a mistake, since both the Calvinists and Arminians, who formed the synod of Dort (where this phrase, five points, originated) were on the article of the trinity generally agreed. The most prominent feature of this system is, the election of some, and reprobation of others, from all eternity.

Calvin's own system extended to the discipline and government of the Christian church, the nature of the Eucharist, and the qualification of those who were entitled to the participation of it. He considered every church as a separate and independent body, invested with the power of legislating for itself; and proposed that it should be governed by presbyteries and synods, composed of clergy and laity, without bishops or any clerical subordination; maintaining, that the province of the civil magistrate extended only to its protection and outward accommodation. In order to facilitate a union with the Lutheran church, he acknowledged a real, though spiritual, presence of Christ in the Eucharist; that true Christians were united to the man Christ in this ordinance; and that divine grace was conferred upon them, and sealed to them, in the celebration of it. The privilege of communion he confined to pious and regenerate believers. Calvinism long subsisted in its most complete exhibition in the city of Geneva; whence it was propagated into Germany, France, the United Provinces, Scotland, and England. In France it was abolished by the revocation of the edict of Nantz, in 1685. It has has been the prevailing religion in the United Provinces ever since the year 1571. In Scotland the celebrated John Knox not only established the doctrinal sentiments, but the ceremonies, rites, and discipline of the Genevan church as nearly as possible.

In England the discipline of that church, if we except the period of the Commonwealth, never prevailed; but the degree to which, with propriety, the articles of the established creed may be considered as Calvinistic, has, almost from the period of the Reformation, been a matter of controversy. The majority of the clergy certainly have not in general been Calvinists: but numbers of respectable and learned individuals among them are and have been so. These have contended that the thirty-nine articles moderately but decidedly assert the peculiarities of their creed. On the other hand, the bishop of Winchester has published a very popular work, entitled A Refutation of Calvinism, in which he insists that neither the homilies nor any of the formularies of the church contain any thing in favor of that system.

CALUMBA, the root of the cocculus palmatus. This root is imported from Ceylon, in circular, brown knobs, wrinkled on the outer surface, yellowish within, and consisting of woody, and medullary laminæ. Its smell is aromatic, its taste pungent, and very bitter. Spirit of wine extracts its virtues in the greatest perfection, its watery infusion being more perishable than that of other bitters. The extract made first by spirit and then by water, and reduced by evaporation to a semi-fluid consistence, is found to be equal if not superior in efficacy, to the powder. As an antiseptic, Calumba root is certainly inferior to bark; but as a corrector of putrid bile it is greatly superior; whence also it is probable, that it would be of service in the West India yellow fever. It does not appear to have the least heating quality; it occasions no disturbance, and agrees very well with a milk diet, as it is not disposed to acidity. The dose of the powdered root is half a drachm, which, in urgent cases, may be repeated every third or fourth hour.

CALUMET, a symbolical instrument of great importance among the American Indians. It is a pipe, whose bowl is generally made of a soft red marble; the tube of a very long reed, ornamented with wings and feathers of birds. No affair of consequence is transacted without the calumet. It appears in meetings of commerce or exchanges, and in congresses for determining peace or war. The acceptance of the calumet is a mark of concurrence with the terms proposed, as a refusal is a certain mark of rejection. Even in the rage of a conflict this pipe is sometimes offered: and, if accepted, the weapons of destruction instantly drop from their hands, and a truce ensues. The calumet of peace is different from that of war. They make use of the former to seal their alliances and treaties, to travel with safety, and to receive strangers; but of the latter to proclaim war. It consists of a red stone, like marble, formed into a cavity resembling the head of a tobacco pipe, and fixed to a hollow reed. They adorn it with feathers of various colors; and name it the calumet of the sun, to which luminary they present it, in expectation of thereby obtaining a change of weather as often as they desire. From the winged ornaments of the calumet, and its conciliating uses, writers compare it to the caduceus of Mercury, which was carried by the caduceatores of peace, with terms to the hostile states.

CALUMET, DANCE OF THE, is a solemn rite among the Indians on various occasions. They dare not wash themselves in rivers in the beginning of summer, nor taste of the new fruits, without performing it; and the same ceremony always confirms a peace or precedes a war. It is performed in winter in their cabins, and in summer in the open fields. For this purpose they choose a spot among trees to shade them from the heat of the sun, and lay in the middle a large mat, as a carpet, setting upon it the god of the chief of the company. On the right hand of this image they place the calumet, as their great deity, erecting around it a kind of trophy with their arms. The hour of dancing being come, those who are to sing take the most honorable seats under the shade of the trees. The company is then ranged round, every one, before he sits down, saluting the monitor, which is done by blowing upon it the smoke of their tobacco. Each person next receives the calumet in rotation, and holding it with both hands, dances to the cadence of the vocal music, which is accompanied with the beating of a sort of drum. During this exercise, he gives a signal to one of their warriors, who takes a bow, arrow, and axe, from the trophies already mentioned, and fights him; the former defending himself with the calumet only, and both of them dancing all the while. This mock engagement being over, he who holds the calumet makes a speech, in which he gives an account of the battles he has fought, and the prisoners he has taken, and then receives a cloak, or some other present from the chief of the ball. He then resigns the calumet to another, who, having acted a similar part, delivers it to a third, and he to a fourth, &c. till at last the instrument returns to the person who began the ceremony, and who presents it to the nation invited to the feast, as a mark of their friendship, and a confirmation of their alliance.

CALUMNIÆ, JUDICIUM, was an action brought against the plaintiff in a court for a false and malicious accusation. When an accuser did not prove his charge, nor seemed to have sufficient or probable grounds for bringing any, the judges in pronouncing sentence used the formula calumniosus es: which gave the defendant a right to bring an action of calumny; the penalty of which was frontis inustio, or burning on the forehead.

CALUM'NIATE,
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CALUM'NIATOR,
CALUM'NIATORY,
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CALUM'NIOUSLY,
CALUM'NIOUSNESS,
CALUM'NY.

Lat. *calumnior*; Fr. *calomnier*; to accuse falsely; to charge without just ground; a false and malicious representation to an offensive purpose. To slander; to impeach the credit, and blemish the fame of another by injurious imputations founded in falsehood.

Beauty, wit, high birth, desert in service,
Love, friendship, charity, are subject all
To envious and *calumniating* time. *Shakspeare.*

HAM. If thou dost marry, I'll give thee this plague for thy dowry: Be thou as chaste as ice, as pure as snow, thou shalt not escape *calumny*. Get thee to a nunnery; farewell: Or, if thou wilt needs marry, marry a fool; for wise men know well enough, what monsters you make of them. To a nunnery go; and quickly too. *Id.*

No might nor greatness in mortality,
Can censure 'scape, back-wounding *calumny*,
The whitest virtue strikes. *Id.*

He that would live clear of the envy and hatred of potent *calumniators*, must lay his finger on his mouth, and keep his hand out of the ink-pot. *L'Estrange.*

He mixes truth with falsehood, and has not forgotten the rule of *calumniating* strongly, that something may remain. *Dryden's Fables. Pref.*

One trade or art, even those that should be the most liberal, make it their business to disdain and *calumniate* another. *Sprat.*

It is a very hard *calumny* upon our soil or climate, to affirm, that so excellent a fruit will not grow here. *Temple.*

In order to heal this infirmity, which is natural to the best and wisest of men, I have taken a particular pleasure in observing the conduct of the old philosophers, how they bore themselves up against the malice and detraction of their enemies. The way to silence *calumny*, says Bias, is to be always exercised in such things as are praise-worthy. *Guardian.*

Do I *calumniate*? thou ungrateful Vanoc.—
Perfidious prince!—Is it a *calumny*
To say that Gwendolen, betrothed to Yver,
Was by her father first assured to Valens?
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Behold the host! delighting to deprave,
Who track the steps of glory to the grave,
Watch every fault that daring genius owes,
Half to the ardours which its birth bestows,
Distort the truth, accumulate the lie,
And pile the pyramid of *Calumny!* *Byron.*

Calumny was admirably personified by Apelles. This celebrated painter, having been accused of conspiracy against Ptolemy, king of Egypt; determined to represent calumny in a picture. On the right of this celebrated piece was seated a man with large ears, resembling Midas, stretching out his hand to Calumny, who approached him; and near him were placed two female figures, of Ignorance and Diffidence. On the other side stood Calumny, a beautiful female, appearing agitated and enraged; she held in her left hand a flaming torch, and with her right she dragged by the hair a youth, who was lifting his hands towards the heavens, and calling the gods to witness in his favor. Before her moved a pale and deformed man, with piercing eyes, who seemed to have just recovered from a long illness: this was Envy. Two other females conversed with Calumny: these were Concealment and Deceit. Another female followed, clothed in black, with tattered garments, which was Repentance; she turned her head backward, dissolved in tears, and looked with shame upon Truth who approached her.

Calumny, Oath of, Juramentum, or rather Jusjurandum, Calumniæ, among civilians and canonists, was an oath which both parties in a cause were obliged to take; the plaintiff that he did not bring his charge, and the defendant that he did not deny it, with a design to abuse each other, but because they believed their cause was just and good; that they would not deny the truth, nor create unnecessary delays, nor offer the judge or evidence any gifts or bribes. If the plaintiff refused this oath, the complaint was dismissed; if the defendant, it was taken pro confesso. The juramentum calumniæ is much disused, as a great occasion of perjury. Anciently the advocates and proctors also took this oath, but of late it is dispensed with, and thought sufficient that they take it once for all at their first admission to practice.

CALX properly signifies lime, but is used by chemists and physicians for a fine powder remaining after the calcination or corrosion of metals and other mineral substances. All metalic calces made by fire, are found to weigh more than the metal from which they were originally produced.

Calx Nativa, in natural history, a kind of marly earth, of a dead whitish color, which, if thrown into water, makes a considerable bubbling and hissing noise, and has, without previous burning, the quality of making a cement like lime or plaster of Paris. It is found in England.

Calx Viva, or quick-lime, that whereon no water has been cast, in contradistinction to lime which has been slacked. See Lime.

CALYCANTHUS, in botany, a genus of the polygynia order, in the icosandria class of plants: cal. is monophyllous, urceolate, with small colored leaves: cor. consisting of the leaves on the calyx; the styles are numerous, each with a glandula stigma; the seeds are many, each with a train, within a succulent calyx. The species are all shrubs, the chief are, 1. C. floridus, flowering calycanthus, or Carolina allspice tree, a native of Carolina. It is of a brown color, and when bruised emits a most agreeable odor. The leaves that garnish this delightful aromatic are of an oval figure, pointed, nearly four inches long, and at least two and a-half broad, placed opposite by pairs on the branches. At the end of these stand the flowers, of a kind of chocolate purple color, and possessed of the opposite qualities of the bark on the branches. They stand single on their short foot-stalks, come out in May and June, and are succeeded by ripe seeds in England. The propagation of this shrub is not very difficult.

Calycanthus Præcox, a native of Japan. This species is not inured to the climate of Britain.

CALYCERA, from *καλυξ*, calyx, and *κερας*, a horn; a genus of plants, of the class syngenesia, order segregata: cal. common, polyphyllous proper, five-toothed. Florets tubular, male and hermaphrodite, seeds naked. There is but one species, C. herbacea; native of Chili.

CALYCIFLORUS, in zoology, a species of brachionus, of a simple form, the shell being crenated behind, and the upper lip four-toothed. Found in standing waters, but invisible to the naked eye.

CALYCINA, in entomology, a Swedish species of aranea; the aranea Kleynii of Scopoli. It is of a pale yellowish color, and derives its name from its habit of secreting itself in the calyces of flowers from which the corolla has fallen, to fasten on the flies that are tempted thither in search of the nectareous juices.

Calycina Methodus, Calycine Method, a system of botanical classification, founded upon the calyx, and published by Linnæus at Leyden, in 1738, in his Classes Plantarum.

CAL'YCLE, *n. s.* Lat. *calyculus*; a small bud of a plant.

CALYDON, a city of Ætolia, where Œneus, the father of Meleager reigned. The Evenus flows through it, and it receives its name from Calydon the son of Ætolus. During the reign of Œneus, Diana sent a wild boar to ravage the country, on account of the neglect which had been shown to her divinity by the king. All the princes of that age assembled to hunt this boar, which event was greatly celebrated by the poets, under the name of the chase of the Calydonian boar. Meleager killed the animal with his own hand, and gave the head to Atalanta, of whom he was enamoured. The skin was preserved, and was still seen in the time of Pausanias, in the temple of Minerva. The tusks were also preserved by the Arcadians in Tegea, and Augustus carried them away to Rome, because the people of Tegea had followed the party of Antony. These tusks were shown for a long time at Rome, one of them was about half an ell long, and the other was broken. See Meleager and Atalanta.

CALYPLECTUS, in botany, a genus of plants, of the class icosandria, order monogynia: cal. bell-shaped, perianth leathery, with from ten to twelve folds, and the same number of teeth: cor.

ten to twelve petals, attached to the folds of the calyx: STAM. about thirty: PIST. germ superior, striated: PERIC. capsule, one celled, longitudinally striated in its upper part, opening irregularly. Seeds numerous, and membranous.

CALYPSO, in entomology, an African species of papilio, distinguished by having the wings roundish and yellow; a dot, the tip of the anterior pair, and the margin of the posterior ones black.

Calypso, one of the Oceanides, or a daughter of Atlas, according to some writers, was goddess of silence, and reigned in the island of Ogygia. But the situation, and even the existence, of this island is doubted. When Ulysses was shipwrecked on her coasts, she received him with great hospitality, and offered him immortality if he would remain with her as a husband. The hero refused, and after seven years' delay, he was permitted to depart from the island by order of Mercury, the messenger of Jupiter. During his stay, Ulysses had two sons by Calypso, Nausithous and Nausinous. Calypso was inconsolable at the departure of Ulysses.

CALYPTRA, in botany, the calyptre, a tender skin that loosely covers the top of the theca, like a cup. The calyptra is villose or hairy, when composed of hairs; entire, when it covers the whole top of the theca, dimidiate when it half covers the theca, and dentated when the rim is set with teeth.

CALYX, in botany. See Botany.

CAM, or Granta, a river of England, formed by the junction of the Rhee which rises in Hertfordshire, and the Granta which rises in Essex. This takes place near Cambridge, to which the united stream gives name, and afterwards flows into the Ouse.

CAMÆA, in natural history, a genus of the semi-pellucid gems, approaching to the onyx structure, being composed of zones, and formed on a crystalline basis; but having the zones very broad and thick, and laid alternately one on another, usually less transparent and more debased with earth than the onyxes. There are four species; viz. 1. the dull-looking onyx, with broad black and white zones; the camæa of the moderns, and the Arabian onyx. It is found in Egypt, Arabia, Persia, and the East Indies. 2. The dull broad-zoned, green and white camæa, or the jaspicameo of the Italians; found in the East Indies, and some parts of America. 3. The hard camæa, with broad white and chestnut colored veins. 4. The hard camæa, with bluish, white, and flesh-colored broad veins, being the sardonyx of Pliny's time, brought from the East Indies.

CAMAHA, in the materia medica, a name given by Avicenna and others to the large mushrooms found in the deserts of Numidia, and many other parts of Africa. They are white on the outside: the modern Africans call them terfon, and are very fond of them; they eat them with milk, water, and spices, and account them wholesome and nutritive.

CAMA'IEU, *n. s.* From *camehuia*, which name is given by the orientals to the onyx, when, in preparing it, they find another color. A stone with various figures and representations of landscapes, formed by nature. In painting, a term used when there is only one color, and where the lights and shadows are of gold, wrought on a golden or azure ground. This kind of work is chiefly used to represent basso relievos.

Camaieu, or Camayeu, in mineralogy, a word used to express a peculiar sort of onyx: also by some to express a stone, whereon are found various figures and representations of landscapes, &c. formed by a kind of lusus naturæ; so as to exhibit pictures without painting. The word comes from camehuia, a name the Orientals gave to the onyx, when they find, in preparing it, another color. It is now used to express those precious stones, as onyxes, cornelians, and agates, whereon the lapidaries employ their art to aid nature, and perfect those representations; and also any kind of gem, whereon figures may be engraven, either indented, or in relievo. In this sense the lapidaries of Paris were called in the statutes, cutters of camayeux. It is more particularly used for those stones of differently colored laminæ. These laminæ are left or removed with much art, for the head, the beard, the hair, and other colors of a bust. Some antique cameos have four layers, as the fine one of the apotheosis of Augustus, and that of Germanicus in the Royal Library at Paris; one of the same subject as the first mentioned, and another of Rome and Augustus, in the cabinet at Vienna.

CAMALDOLITES, Camaldulians, or Camaldunians, an order of religious, founded by Romuald, an Italian fanatic, in 1023, in the desert of Camaldoli. Their rule is that of St. Benedict; and their houses, by the statutes, are never to be less than five leagues from cities. The Camaldolites have not borne that title from the beginning of their order; till the close of the eleventh century they were called Romualdins, from the name of their founder. Till that time, Camaldolite was a particular name for those of the desert Camaldoli; and D. Grandi observes, was not given to the whole order, in regard it was in this monastery that the order commenced, but because the regulation was best maintained here. Guido Grandi, mathematician to the grand duke of Tuscany, and a monk of this order, published Camaldulian Dissertations, on the origin and establishment of it. They were disguished into two classes, viz. Cœnobites and Eremites.

CAMALODUNUM, in ancient geography, a town of the Trinobantes, the first Roman colony of veterans in Britain. From the Itineraries it appears to have stood where Malden now stands. It continued to be an open place under the Romans; a place of pleasure rather than strength; adorned with splendid works, as a theatre, and a temple of Claudius: which the Britons considered as badges of slavery, and which gave rise to several commotions.

CAMARGUE, or Camarque, La, a tract of Provence, France, insulated by the two principal mouths of the Rhone. It is sometimes called the Delta of France. It is a cluster of islands, spread over nearly 200 square miles, and separated only by canals. The soil is fertile in corn and pasture, though very marshy in particular places, and much impregnated with salt.

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3000 black cattle are said to be found here, a like stock of horses, and 40,000 sheep. The island is the property of the town of Arles; and belongs to the department of the Mouths of the Rhone. It is divided into nine parishes, and numerous villages.

CAMARINA, in ancient geography, a city of Sicily, built by the Syracusans on an eminence near the sea, in the south of Sicily, to the west of the promontory Pachynum, between the rivers Hipparis and Oanus. Nothing remains but its ancient walls, a mile and a half in compass; with a few houses. It is now called Camarana.

CAMARINA PALUS, a marsh or lake, near the city, from which it took its name. In a time of drought, the stench of the lake produced a pestilence; upon which the inhabitants consulted the oracle, whether they should not drain it. The oracle dissuaded them: they notwithstanding drained it, and opened a way for their enemies to come and plunder their city: hence the proverb, Ne moveas Camarinam, that is, not to remove one evil to bring on a greater. It is now called Lago di Camarana.

CAMARINES, a province on the south of Luçon, one of the Philippine islands. There are several hot springs here, and some of a petrifying quality. The capital is Caceres.

CAMARONES, a large river of western Africa, which is, however, but little known to Europeans. It forms at its mouth a number of alluvial islands. Long. 9° 0′ E., lat. 3° 30′ S.

CAMARONES, a river of Patagonia, which, forming a bay of that name, falls into the Atlantic in lat. 44° 45′ S.

CAMAROSIS, in surgery, denotes a fracture of a bone, wherein the two broken ends rise and form a kind of arch. It is chiefly applied to fractures in the skull.

CAMASSEI, or CAMACE, (Andrew), painter of history and landscape; was born at Bevagna, and studied under Dominichino and Sacchi. He was employed in St. Peter's at Rome, and at St. John Lateran; and his works are much admired for sweetness of coloring, and delicacy of pencil. He died in the bloom of life, when his reputation was daily advancing, A. D. 1657.

CAMBAHEE, a considerable river of South Carolina, formed by the junction of two large streams which rise in Orangeburg, and after passing into Charleston district, unite, and running south-east, enter St. Helena Sound, a little to the south-west of Ashepoo.

CAMBAL, a fertile and hilly district of Southern Abyssinia. Its inhabitants are independent, and consist of Christians, Mahommedans, and Pagans.

CAMBAY, a sea-port town of Ahmedabad, Hindostan, in the province of Gujerat, the Cumanes of Ptolemy. It stands at the top of a gulf of the same name, and was formerly a flourishing commercial port, but the sea has retired from the coast considerably, and the navigation of the gulf is dangerous. Its principal trade now is in corn, cornelians, and cottons, for Bombay; and a few elephants' teeth and cornelians for the China markets. There are three extensive bazaars. The town is surrounded by a brick wall, and most of the houses are of brick or stone. The wall is about five miles in circuit, enclosing five noble reservoirs of water. The inhabitants are considered very expert plasterers. So early as the fifth century this town is conjectured to have been the capital of the Baleyras and of the western Hindoo emperors. It was taken by the Mahommedans in the thirteenth century, and in the sixteenth presented to the Portuguese the magnificent ruins of a first-rate city: but these were more to the south than the site of the present town. Here, however, are still seen Hindoo subterranean temples, constructed since the Mahommedan invasion, and the houses of opulent persons contain numerous apartments under ground. In a subterranean Jain temple are two statues of deities of large size. The inscription on one, which is white, intimates that it is an image of Parswanatha, carved and consecrated in the reign of the emperor Acber, A.D. 1602. That on the other, the black one, has merely the date 1651, with the names of two Banyans who brought it here. This place was first taken possession of by the British in 1780, but restored three years afterwards to the Mahrattas. It was again taken in the last Mahratta war, and confirmed to the company in 1803. It is in the jurisdiction of Broach.

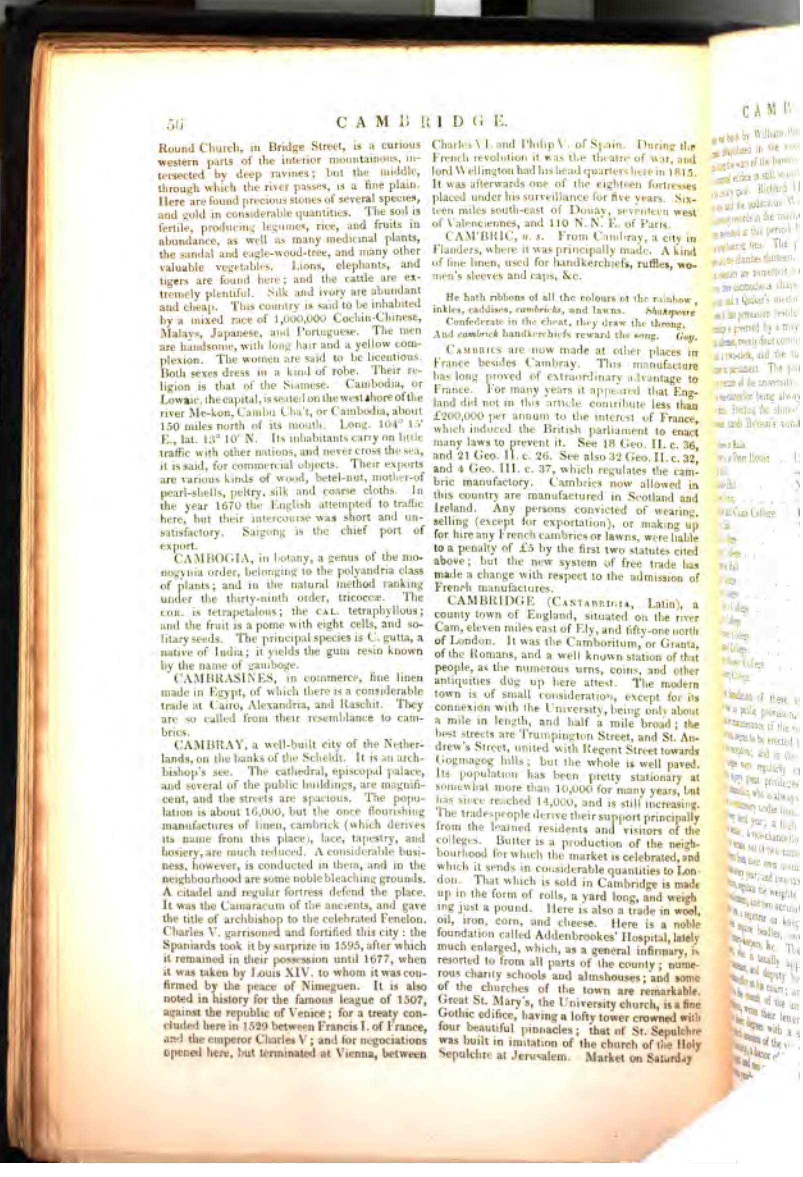
CAMBAYES, in commerce, cotton cloths made at Bengal, Madras, and some other places on the coast of Coromandel. They are proper for the trade of Marseilles, whither the English at Madras sent great numbers of them. Many of them are also imported to Holland.

CAM'BER, *n.* } Lat. *camurus;* Fr. *cambre;* Per. *khami*, an arch or
CAM'BERING. }
curve. A word mentioned by Skinner as peculiar to ship-builders, who say that a place is cambering, when they mean arched.

> *Camber*, a piece of timber cut arching, so as a considerable weight being set upon it, it may in length of time be induced to a straight.
>
> *Moxon's Mechanical Exercises.*

CAMBERT, a French musician of the seventeenth century, much admired for the manner in which he touched the organ. He became superintendent of music to Anne of Austria, the queen-mother. The abbe Perin associated him in the privilege he obtained of setting up an opera in 1669. Cambert set to music two pastorals, one entitled Pomona, the other Ariadne, which were the first operas given in France. He also wrote a piece entitled The Pains and Pleasures of Love. These pieces pleased the public; yet, in 1672, Lully obtained the privilege of the opera, and Cambert came to England, where he became superintendent of music to king Charles II. and died in 1677.

CAMBODIA, a country of Asia, in the East Indies, bounded on the north by the kingdom of Laos, on the east by Cochin-China and Tsiampa, and on the south and west by the gulf and kingdom of Siam. It extends about 400 miles from north to south, and 150 in breadth from east to west, being watered by a fine stream, generally known by the name of the country. The coast is flat and woody; the eastern and



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Cambridge Castle was built by William the Conqueror, but much dilapidated in the succeeding reigns and during the wars of the barons; a gate house of the original edifice is still standing, and is now the county gaol. Richard II. held a parliament here, and the audacious Wat Tyler burnt the University records in the market place. It was often molested at this period by outlaws from the neighbouring fens. The parishes are fourteen, and the churches thirteen, in number; and the dissenters are numerous and respectable, having three commodious chapels, one of smaller size, and a Quaker's meeting-house, though none of that persuasion reside in the town. Cambridge is governed by a mayor, recorder, thirteen aldermen, twenty-four common council-men, and a town-clerk, and the town sends two members to parliament. The police is under the joint direction of the university and corporation, the vice-chancellor being always a magistrate ex officio. Fronting the shire-hall, in the market-place, stands Hobson's conduit, the gift of a celebrated horse jockey and carrier, in the reign of James I., whose conduct gave rise to the expression of Hobson's choice, 'that or none;' for in letting out his horses he strictly followed that rotation which gave each an equal share of work; and refused, it is said, to let any other than that which stood next. Near the gardens of Bene't College is a botanic garden of five acres, with a large house for the use of the governors, curator, &c., given to the University by the late Dr. Walker, and augmented by the benefaction of the late Dr. Betham.

The *University of Cambridge* consists of thirteen colleges and four halls, the latter enjoying equal privileges with the former. The remote antiquity that has been claimed for it need not here engage much attention. Sigebert, king of the East Angles in 630, was the first founder of whom any credible account remains; but few, or none, of the existing colleges were built or endowed until the thirteenth century. The following is the order of their foundation:—

Colleges or Halls.	Founders.	A. D.
St. Peter's, or Peter House .	Hugo de Balsham	1257
Clare Hall	————————	1326, 1342
Pembroke Hall	Mary de St. Paul	1343
Corpus Christi	————————	1356
Gonville and Caius College .	Edmund Gonville and Dr. Caius	1348, 1557
Trinity Hall	William Bateman, bishop of Norwich .	1351
King's College	Henry VI. VII. and VIII.	1441
Queen's College	Margaret of Anjou	1448
Catherine Hall	Robert Woodlark	1474
Jesus College	John Alcock, bishop of Ely	1496
Christ College	Margaret, countess of Richmond . .	1506
St. John's College	The same	1511
Trinity College	Henry VIII.	1540
Magdalen College	Thomas, lord Audley	1542
Emanuel College	Sir Walter Mildmay	1584
Sidney Sussex College . . .	Frances, countess of Sussex	1593
Downing College . . .	Sir George Downing	1800

At the first foundation of these splendid schools there was no public provision for the accommodation or maintenance of the scholars; but afterwards inns began to be erected by pious persons for their reception; and in the time of Edward I. colleges were regularly endowed. The university enjoys great privileges. It is governed by a chancellor, who is always a nobleman, and has a commissary under him, but may be changed every third year; a high steward, chosen by the senate; a vice-chancellor, chosen annually by the senate, out of two named by the heads of colleges from their own number; two proctors, chosen every year; and two taxers, who, with the proctors, regulate the weights and measures; two moderators, and two scrutators. The other officers are, a registrar or keeper of the archives, three esquire beadles, one yeoman beadle, the library-keepers, &c. There is also a commissary, who is usually appointed an assistant, or accessor, and deputy high-steward to the vice-chancellor in his court; and a public orator, who is the mouth of the university on public occasions, writes their letters, presents noblemen to their degrees with a speech, &c. The caput (which consists of the vice-chancellor, a doctor of divinity, a doctor of laws, a doctor of physic, a regent and non-regent master of arts, who are chosen yearly on the twelfth of October), are to consider and determine what graces are proper to be brought before the body of the university, and each of them has a negative voice. All graces must first pass the caput before they can be produced to the senate. Each college has its school and library, as at Oxford, of which those of Trinity and St. John are the most considerable. The senate of this university includes all the doctors and masters of arts, and is divided into two houses: the first consisting of regents, or those who have not been masters of arts five years, called white-hoods, from the lining of their hoods. The second are non-regents, or those who have taken the degree of master upwards of five years, but have not advanced to the degree of doctor; these are called black-hoods. The doctors under two years standing can vote only in the regent-house; but all others may vote in which house they please. In the senate-house the rejection of all officers, the appointment of the magistrates, and the admission to degrees, takes place; and no language but Latin is permitted to be spoken at its meetings. Besides the fellows and scholars, there are two other orders, called pensioners, the greater and the less; the former are the young nobility, and gentlemen of fortune, called fellow-commoners, because they dine with the fellows: the less are dieted with the scholars. There is

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CAM'BRIC, *n. s.* From Cambray, a city in Flanders, where it was principally made. A kind of fine linen, used for handkerchiefs, ruffles, women's sleeves and caps, &c.

> He hath ribbons of all the colours of the rainbow, inkles, caddises, *cambricks*, and lawns. *Shakspeare*
>
> Confederate in the cheat, they draw the throng,
> And *cambrick* handkerchiefs reward the song. *Gay.*

CAMBRICS are now made at other places in France besides Cambray. This manufacture has long proved of extraordinary advantage to France. For many years it appeared that England did not in this article contribute less than £200,000 per annum to the interest of France, which induced the British parliament to enact many laws to prevent it. See 18 Geo. II. c. 36, and 21 Geo. II. c. 26. See also 32 Geo. II. c. 32, and 4 Geo. III. c. 37, which regulates the cambric manufactory. Cambrics now allowed in this country are manufactured in Scotland and Ireland. Any persons convicted of wearing, selling (except for exportation), or making up for hire any French cambrics or lawns, were liable to a penalty of £5 by the first two statutes cited above; but the new system of free trade has made a change with respect to the admission of French manufactures.

CAMBRIDGE (CANTABRIGIA, Latin), a county town of England, situated on the river Cam, eleven miles east of Ely, and fifty-one north of London. It was the Camboritum, or Granta, of the Romans, and a well known station of that people, as the numerous urns, coins, and other antiquities dug up here attest. The modern town is of small consideration, except for its connexion with the University, being only about a mile in length, and half a mile broad; the best streets are Trumpington Street, and St. Andrew's Street, united with Regent Street towards Gogmagog hills; but the whole is well paved. Its population has been pretty stationary at somewhat more than 10,000 for many years, but has since reached 14,000, and is still increasing. The tradespeople derive their support principally from the learned residents and visitors of the colleges. Butter is a production of the neighbourhood for which the market is celebrated, and which it sends in considerable quantities to London. That which is sold in Cambridge is made up in the form of rolls, a yard long, and weighing just a pound. Here is also a trade in wool, oil, iron, corn, and cheese. Here is a noble foundation called Addenbrookes' Hospital, lately much enlarged, which, as a general infirmary, is resorted to from all parts of the county; numerous charity schools and almshouses; and some of the churches of the town are remarkable. Great St. Mary's, the University church, is a fine Gothic edifice, having a lofty tower crowned with four beautiful pinnacles; that of St. Sepulchre was built in imitation of the church of the Holy Sepulchre at Jerusalem. Market on Saturday

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Cambridge Castle was built by William the Conqueror, but much dilapidated in the succeeding reigns and during the wars of the barons; a gate house of the original edifice is still standing, and is now the county gaol. Richard II. held a parliament here, and the audacious Wat Tyler burnt the University records in the market place. It was often molested at this period by outlaws from the neighbouring fens. The parishes are fourteen, and the churches thirteen, in number; and the dissenters are numerous and respectable, having three commodious chapels, three of smaller size, and a Quaker's meeting-house, though none of that persuasion reside in the town. Cambridge is governed by a mayor, recorder, thirteen aldermen, twenty-four common council-men, and a town-clerk, and the town sends two members to parliament. The police is under the joint direction of the university and corporation, the vice-chancellor being always a magistrate ex officio. Fronting the shire-hall, in the market-place, stands Hobson's conduit, the gift of a celebrated horse jockey and carrier, in the reign of James I., whose conduct gave rise to the expression of Hobson's choice, 'that or none;' for in letting out his horses he strictly followed that rotation which gave each an equal share of work; and refused, it is said, to let any other than that which stood next. Near the gardens of Bene't College is a botanic garden of five acres, with a large house for the use of the governors, curator, &c., given to the University by the late Dr. Walker, and augmented by the benefaction of the late Dr. Betham.

The *University of Cambridge* consists of thirteen colleges and four halls, the latter enjoying equal privileges with the former. The remote antiquity that has been claimed for it need not here engage much attention. Sigebert, king of the East Angles in 630, was the first founder of whom any credible account remains; but few, or none, of the existing colleges were built or endowed until the thirteenth century. The following is the order of their foundation:—

Colleges or Halls.	Founders.	A. D.
St. Peter's, or Peter House	Hugo de Balsham	1257
Clare Hall	———	1326, 1342
Pembroke Hall	Mary de St. Paul	1343
Corpus Christi	———	1356
Gonville and Caius College	Edmund Gonville and Dr. Caius	1348, 1557
Trinity Hall	William Bateman, bishop of Norwich	1351
King's College	Henry VI. VII. and VIII.	1441
Queen's College	Margaret of Anjou	1448
Catherine Hall	Robert Woodlark	1474
Jesus College	John Alcock, bishop of Ely	1496
Christ College	Margaret, countess of Richmond	1506
St. John's College	The same	1511
Trinity College	Henry VIII.	1540
Magdalen College	Thomas, lord Audley	1542
Emanuel College	Sir Walter Mildmay	1584
Sidney Sussex College	Frances, countess of Sussex	1593
Downing College	Sir George Downing	1800

At the first foundation of these splendid schools there was no public provision, for the accommodation or maintenance of the scholars; but afterwards inns began to be erected by pious persons for their reception; and in the time of Edward I. colleges were regularly endowed. The university enjoys great privileges. It is governed by a chancellor, who is always a nobleman, and has a commissary under him, but may be changed every third year; a high steward, chosen by the senate; a vice-chancellor, chosen annually by the senate, out of two named by the heads of colleges from their own number; two proctors, chosen every year; and two taxers, who, with the proctors, regulate the weights and measures; two moderators, and two scrutators. The other officers are, a registrar or keeper of the archives, three esquire beadles, one yeoman beadle, the library-keepers, &c. There is also a commissary, who is usually appointed an assistant, or accessor, and deputy high-steward to the vice-chancellor in his court; and a public orator, who is the mouth of the university on public occasions, writes their letters, presents noblemen to their degrees with a speech, &c. The caput (which consists of the vice-chancellor, a doctor of divinity, a doctor of laws, a doctor of physic, a regent and non-regent master of arts, who are chosen yearly on the twelfth of October), are to consider and determine what graces are proper to be brought before the body of the university, and each of them has a negative voice. All graces must first pass the caput before they can be produced to the senate. Each college has its school and library, as at Oxford, of which those of Trinity and St. John are the most considerable. The senate of this university includes all the doctors and masters of arts, and is divided into two houses: the first consisting of regents, or those who have not been masters of arts five years, called white-hoods, from the lining of their hoods. The second are non-regents, or those who have taken the degree of master upwards of five years, but have not advanced to the degree of doctor; these are called black-hoods. The doctors under two years standing can vote only in the regent-house; but all others may vote in which house they please. In the senate-house the rejection of all officers, the appointment of the magistrates, and the admission to degrees, takes place; and no language but Latin is permitted to be spoken at its meetings. Besides the fellows and scholars, there are two other orders, called pensioners, the greater and the less; the former are the young nobility, and gentlemen of fortune, called fellow-commoners, because they dine with the fellows: the less are dieted with the scholars. There is also a considerable number of scholars of inferior fortune, called sizars: these, though not of the foundation, are capable of receiving many benefactions, called exhibitions, and frequently attain the highest honors. To particularise the buildings, and peculiar privileges, of each of the colleges in detail, will hardly be expected from us. We can only furnish the reader with a cursory glance at them.

St. Peter's College, or Peter House, was formerly two hostels, or hospitals, and appropriated in 1257, by Hugo de Balsham, prior of Ely, to the use of students. He endowed this foundation in 1214, for the support of a master, fourteen fellows, twenty-nine Bible clerks, and eight poor scholars; the number to be afterwards regulated by the fluctuation of the revenues. The fellowships have been since increased by numerous benefactions. The chapel was erected in 1632. The building surrounds two courts (the largest cased with stone), which are separated by a cloister and gallery. A lady Mary Ramsey is said to have once offered to leave a considerable property to St. Peter's, if it should be agreed to be called afterwards 'Peter and Mary's College.' Dr. Soame, the master, replied—, 'Peter hath been too long a bachelor to think of a companion in his old age.' 'A dear bought jest,' says Fuller, 'for lady Ramsey, disgusted at the refusal, turned the stream of her benevolence into a different channel.'

Clare Hall was erected on the former site of University Hall, a college founded in 1326 by Dr. Richard Baden. This being, about sixteen years after its erection, destroyed by fire, it was rebuilt on a more extended scale by Elizabeth de Burgh, in 1344; and she, being last heiress of the earls of Clare, gave to it its present name, with endowment for a master, ten fellows, and ten scholars. Richard III., Thomas Cecil, earl of Exeter, John Freeman, esq., William Butler, esq., and Samuel Blythe, esq., severally augmented the revenues, which now maintain seventeen fellows, and between thirty and forty scholars. This college, which stands near the north-west angle of King's College chapel, is more uniform in its buildings than most of its neighbours, and as pleasantly situated as any in the university. It was rebuilt of stone in 1638, except the chapel, which was erected in 1703, by Sir James Burroughs, at a cost of £7000. The alcove over the altar contains a fine painting of the Salutation, from the hand of Cipriani.

Pembroke Hall was founded in 1343, by Mary, Countess of Pembroke, and endowed by a charter of Edward III. for a master and six fellows. Henry VI. greatly enriched it. The number of fellowships is sixteen, and the scholarships about seventy. The chapel was built by bishop Wren, from a design of his nephew, Sir Christopher Wren. Here is a small detached building, con[illegible] [illegible]tronomical machine, or [illegible]y made by Dr. Roger [illegible]ted treatise on astro[illegible] [illegible]queathed the interest [illegible]eep 'the instrument [illegible]he college consists [illegible] hall, having at one [illegible]r. Long's sphere [illegible]nd will contain thir'y persons sitting conveniently. It contains meridians, a zodiac, several of the constellations painted on the ceiling, is penetrated by the poles, &c., but was never completed.

Corpus Christi, or *Bene't College*, was established by the union of two religious guilds, and patronised largely by Henry Plantagenet, duke of Lancaster, whom the brethren chose their first alderman. Sir John Cambridge and his son much increased its revenues, which were appropriated in 1356 to the maintenance of a master, eight fellows, six scholars, and three Bible clerks. Since that period the endowments have supported twelve fellows, and nearly sixty scholarships. The name of Bene't, or Benedict College, arose from its proximity to the church of that saint. Its greatest single benefactor was Matthew Parker, archbishop of Canterbury, who founded two fellowships and five scholarships, and bestowed on it the valuable library of Stoke-clare College, Suffolk, besides many valuable MSS. The buildings of this college also surround a square court. Dr. Herring, some years since archbishop of Canterbury, left £1000 towards its recent improvements, which consist of an entire new court, with a handsome Gothic front towards Trumpington street.

Gonville and Caius, called frequently King's College, was founded in the year 1348, by Edmund Gonville, and at first called Gonville Hall; but in 1557 Dr. John Caius, physician to Queen Mary, built a new court, and the three remarkable gates inscribed respectively, 'Humilitatis,' the gate of humility; 'Virtutis,' the gate of virtue; 'Is Caius posuit Sapientiæ' (John Caius built this in honour of wisdom); 'Honoriæ,' the gate of honor. Since the time of Dr. Caius the fellowships have increased to twenty-nine, and the scholarships to nearly 100. The principal court has been cased with stone and partly rebuilt. In the chapel is a tomb to the memory of Dr. Caius, with the following terse epitaph:--

FUI CAIUS

VIVIT POST FUNERA VIRTUS.

Trinity Hall was originally one of those hostels where the students resided at their own expense; and was appropriated by Richard Crowder, prior of Ely, in the reign of Henry III. Bateman, bishop of Norwich, converted it into a college in 1351, and provided for a master, three fellows, and two scholars: various benefactions have increased the fellowships to twelve, and the scholarships to fourteen. The hall is faced with stone, and the buildings are very neat and uniform. Among its modern benefactions is one of £20,000, left in 1747, by Dr. John Andrews, for the erection of two spacious wings.

King's College, founded by Henry VI. in 1441, is the pride of Cambridge. In 1443 he endowed it for a provost, seventy fellows or scholars, three chaplains, six clerks, sixteen choristers, and a music master, sixteen officers of the foundation, twelve servitors for the senior follows, and six poor scholars. All the designs of this munificent monarch, however were never completed, and but a small part of the intended buildings were erected Henry VII. may be

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called its second founder. Towards the latter end of his reign he expended upwards of £2000 on its edifices, besides presenting the college with £5000 separately, for furnishing the chapel and provost's residence. In the chapel library is a plan of the college, as intended to be built by his predecessor. Some splendid additions have lately been made to this noble college.

King's College Chapel has been considered the most exact, as it is certainly one of the most beautiful specimens of Gothic architecture in Europe. The whole edifice is 316 feet in length, and eighty-four in breadth. Eleven immense buttresses support each side, and terminate in elegant pinnacles. On each corner is an octangular tower, 146½ feet high, and crowned with a noble dome. The open worked battlements give an airiness to its appearance, in fine contrast with the massive part of the structure. The interior is yet more striking; and its vast stone roof, unsupported by a single pillar, becomes an object of astonishment and awe to all who see it for the first time. It is in the form of a Gothic arch, flattened at the centre, and is divided into twelve parts, separated by the eleven principal arches, which spring from the buttresses. Each division of the roof is formed of groined arches, beautifully carved, and in the centre is one massy stone, of above a ton weight, ornamented with roses and portcullisses. The inside walls are wholly covered with numerous sculptured ornaments of almost inimitable workmanship. These represent the arms of the houses of York and Lancaster, with a number of crowns, roses, portcullisses, &c. Some of the supporters, cut in stone, display the hand of a master, and equal in expression almost any marble sculpture. On a panel, at the upper part of the screen which separates the anti-chape. from the choir, is a small piece in very bold relief, which is universally admired, representing the Almighty hurling the rebel angels from heaven; and on the altar-piece is a fine 'taking down from the cross,' which was presented by the Earl of Carlisle, and is supposed to be a production of Raphael. Its magnificent and exquisitely painted windows complete the enchantment of the inner scene. In the arrangement of the paintings, the subjects from the New Testament, on the north side, are all prior to the crucifixion of our Saviour; while those on the south side are posterior to that event; and the east window is devoted entirely to the most material circumstances immediately connected with that awful deed. This window is fifty-three feet high, and twenty-eight wide, and is separated by two elegant buttresses and a transom into six compartments. Each compartment contains one subject, and is divided by mullions into three lights.

Queen's College was founded in 1448, by Margaret of Anjou, consort of Henry VI., and endowed with £200 per annum for the support of a principal, and four fellows. Elizabeth Woodville, queen of Edward IV. was prevailed on by Andrew Ducket, the master, to complete its buildings, and establish it for a master, nineteen fellows, and forty-five scholars. She has since been celebrated annually, as the co-founder. The buildings surround two quadrangular courts, one of which has a cloister of about 330 feet. This stands on the east bank of the Cam, over which is a curious wooden bridge of one arch, supported by rustic abutments of stone.

Catharine Hall was founded by Woodlark, chancellor of the University, in 1474, and endowed for a master and three or more fellows. The number is now increased to five; and eight bye-fellowships with ten scholarships. The buildings occupy three sides of a square court, and are separated from the street by an iron palisade and an avenue of elms. Its west front, opposite Queen's, has a noble portico.

Jesus College, erected on the foundations of an ancient Benedictine nunnery, was founded by Alcock, Bishop of Ely, in 1496, for a master, six fellows, and six scholars. The endowments at present provide for sixteen fellows and fifty scholars. The college is at a short distance from the town, and the chapel is supposed to have been the ancient conventual church. A tomb of one of the nuns is still remaining, with the inscription,—

MORIBVS. ORNATA. JACET. HIC. BONA. BERTHA.
ROSATA.

It is said that a subterraneous passage exists from this college to Barnwell priory, about a mile distant.

Christ's College, built on the site of an hostel, called God's House, and founded by Henry VI., was endowed, in 1506, by Margaret, countess of Richmond and Derby. The establishment now maintains a master, fifteen fellows, and seventy scholars. The buildings enclose a small quadrangular court, behind which is a modern structure by Inigo Jones. In the gardens is shown a mulberry tree, which Milton planted when a student here.

St. John's College, built on the site of the hospital of St. John's, in 1511, and finished in 1516, was endowed by Margaret countess of Richmond, for a master and thirty-one fellows; but its benefactors have raised a revenue to support sixty-one fellows and 114 scholars. The buildings are of brick, and surround three courts. A new court, surrounded by magnificent buildings, in the Gothic style, has recently been formed on the opposite side of the river, towards the fields; these are probably the most splendid of the new erections in the University. The entrance court from the town has a magnificent portal and four towers. On the other side of a brook, which bounds the walks of the college, are the remains of an ancient and spacious building, called Pythagoras' School, belonging with some houses and several acres of land to Merton College, Oxford. Its walls are strengthened with buttresses, supporting arches of the Saxon style; the building is otherwise devoid of ornament, except one window on each side, which has a pillar in the centre, with a decorated capital with a round moulding. This is supposed to have been the place where the first tutors of the university delivered their lectures.

Magdalen College.—This foundation of Stafford, duke of Buckingham, was confiscated at his death; and, being afterwards obtained from the king, was endowed by Thomas, lord Audley, for a master and four fellows. The latter have since been increased to seventeen, and several scholarships have been added. This college is of brick, and surrounds two courts. The library contains the books and MSS. of Samuel Pepys, esq., secretary to the Admiralty, in the reigns of Charles II. and his successor. The chapel has a curious plaster of Paris altar-piece.

Trinity, the largest college of the university, surrounds two noble quadrangular courts, whose gateways, chapel, and library are fine specimens of architecture. It was founded, in 1546, by Henry VIII., on the site of two other colleges and a hostel, and originally endowed for a master, sixty fellows, sixty-seven scholars, four conducts, three public professors, thirteen poor scholars, twenty beadsmen, and other officers; the number on the establishment has amounted to upwards of 400, of late. The inner court, called after the name of Dr. Thomas Neville, was chiefly built at his expense, in the year 1609. On its west side is the library, a capacious building, 200 feet in length, forty in breadth, and thirty-eight high. Beneath is a spacious piazza, which opens to the river and gardens. On the south side of this court another has been lately built, containing numerous sets of rooms for students. The chapel contains a fine statue of Sir Isaac Newton, by Roubiliac. He is represented in a loose gown of a master of arts, with a prism in his hands. His countenance is turned upwards, with a look of profound meditation, and on the pedestal is the inscription, Qui genus humanum ingenio superavit. The drapery and features are considered extremely beautiful. No object in the university deserves a visitor's notice more than the library of this college. It is a superb apartment, occupying one side of the quadrangle called Neville's court. The books are all ranged on either side, and the compartments crowned with busts of ancient and modern authors.

Emanuel College, founded in 1584 by Sir Walter Mildmay, on the site of a Dominican convent, was endowed for a master, three fellows, and four scholars. Additional donations have provided for the support of fifteen fellows, and nearly 100 scholars and exhibitionists. The hall is thought one of the most elegant in Cambridge; and the altar-piece in the chapel is very fine.

Sidney Sussex College was founded by Frances Sidney, countess of Sussex, who by will bequeathed upwards of £5000 towards a college for a master, ten fellows, and twenty scholars. The first stone of the college was laid on the 20th of May, in 1596, and the building completed in 1599. The chapel and the library were rebuilt recently. The foundation now provides for seven fellows, ten bye-fellows, twenty scholars, and twenty-four bye-scholars, besides a mathematical lecturer, and the exhibitioners.

Downing College, the last of these noble establishments, was originally provided for by the will of Sir George Downing, who died in 1717; but, the bequest being disputed, the great seal was not affixed to its charter until the year 1800. This provides for a master, a professor of English law, a professor of medicine, and sixteen fellows. The latter are to vacate the fellowships at the expiration of twelve years, unless they obtain a licence to hold them longer.

The Senate-House, in the centre of the town, is a noble building of the Corinthian order, designed by Sir James Burrows. It forms the north side of the quadrangle, of which the public schools and library are designed to be the western side. The gallery, supported by fluted columns, is said to be capable of containing 1100 persons; and the whole room, within, is considered the most superb in Europe. It contains statues of George I. and II., the duke of Somerset, by Rysbrach, &c. The schools surround a small court. On the west are the philosophy schools, where disputations are held. On the north the divinity school; and on the left, or south entrance of the court, that of law and physic. At the south-east corner of the philosophy schools is a geometrical staircase, leading to the university library, which occupies the quadrangular apartments above the schools. The original building was erected about the year 1480. The east front, containing the new library, was rebuilt in 1775. Members of the senate, and all bachelors of law and physic, are entitled to have books from this library at any time (not exceeding ten volumes). The statue of Ceres, brought from the temple at Eleusis, by Dr. Clarke, graces the vestibule. The pedestal was designed by Flaxman, from the original in the temple of Minerva Polias at Athens. Here is also (brought from Athens by the same gentleman) the column placed on the tomb of Euclid of Megara, the disciple of Socrates, with an inscription in bas relief. The library contains upwards of 90,000 volumes, besides various curious MSS. The libraries of the several colleges are also rich in MSS., missals, pictures, and curious natural productions and remains, which it is impossible here to particularise.

The University of Cambridge is, on the whole, elegant rather than magnificent. It possesses princely revenues, and many fine specimens of the arts. Its recent improvements, in several of the colleges, have added greatly to its utility and splendour. Its walks and gardens, as scenes for retirement and study, are no where surpassed. But it forms no consistent whole; it has grown under the separate designs of its architects and founders into a splendid collection of disjointed buildings, which would be the noble ornaments of separate towns, but a mind that can comprehend the whole always regrets that there was no presiding design for it. The best apology for this is the plain fact of the case—like every thing characteristic of our country, it has been the creature of necessity and utility rather than of theory and art. This university sends two members to parliament, independently of the two for the town of Cambridge.

Cambridge, a post town of the United States, in South Carolina, capital of the district of Ninety-Six. It is situated in Abbeville county, eighty miles W.N.W. of Columbia, 165 north-west of Charlestown, and fifty north by west of Augusta in Georgia. A district court is held on the 26th of April and November, and a county court for Abbeville county March 25th and September 12th. It is 745 miles from Philadelphia.

Cambridge, one of the largest and most flourishing towns of Middlesex County, Massachusetts, is agreeably situated on the north side of Charles River, over which a bridge has been erected, connecting it with Boston. It contains, besides Harvard university, about 100 dwellings

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congregational and episcopalian churches, and a court house. The university which is considered the most respectable in the united States, consists of several large, spacious brick edifices. Harvard hall is divided into six apartments, one of which is appropriated for the library, two for the philosophical apparatus, one for the museum, a fifth for a refectory, and the other for a chapel. The library contains upwards of 20,000 volumes. The philosophical apparatus has cost nearly £1500, and is one of the completest on the American continent. This university was first instituted in 1636, and was no more than an academic free-school; two years after, in consequence of a donation left it by the Rev. Mr. Harvard of Charlestown, who died there, it was named Harvard College. In 1650 its first charter was obtained from the government of Massachusetts; and in the mean time it received several donations from learned men in Europe. Dr. Lettsom of London was amongst the most distinguished and liberal of these contributors. The governor, lieutenant-governor, the council and senate, the president of the university, and the congregational ministers of the six adjoining towns, are, during office, overseers of the university. The corporation is a distinct body, in whom is vested the property of the university. The number of those who had been admitted to academical degrees, from its first establishment, to July, 1793, was 3360. The usual number of resident students, is from 200 to 250. A supreme court is held here, the last Tuesday in October, and a court of common pleas the last Tuesday in November. It is 350 miles from Philadelphia. Long. 70° 45′ W., lat. 42° 25′ N.

CAMBRIDGE, the chief town of Dorchester county, eastern shore of Maryland. It is situated on the south side of Choptank river, about fifteen miles from its mouth; the river is here nearly two miles wide. It contains about fifty houses, a church, and 300 inhabitants. The situation of the town is healthy and agreeable. It is eighteen miles north-west by west of Vienna, thirty-seven south of Easton, and 152 S.S.W. of Philadelphia. Long. 0° 59′ W., lat. 38° 34′ N.

CAMBRIDGE MANUSCRIPT, a copy of the Gospels and Acts of the Apostles in Greek and Latin. Beza found it in the monastery of Ireneus at Lyons in 1562, and gave it to the university of Cambridge in 1582. It is a quarto, and written on vellum; sixty-six leaves of it are much torn and mutilated, and ten of these are supplied by a later transcriber. Beza conjectures that this MS. might have been written so early as the time of Irenæus. Wetstein apprehends that it either returned or was first brought from Egypt into France; that it is the same copy which Druthmar, an ancient expositor, who lived about A. D. 840, had seen, and which, he observes, was ascribed to St. Hilary; and that R. Stephens had given a particular account of it in his edition of the New Testament in 1550. It is sometimes called Stevens's Second Manuscript. Mill agrees with F. Simon, that it was written in the western part of the world by a Latin scribe, and that it is to a great degree interpolated and corrupted: he observes, that it agrees so much with the Latin Vulgate as to afford reason for concluding that it was corrected or formed upon a corrupt and faulty copy of that translation. From this and the Clermont copy of St. Paul's epistles, Beza published his larger Annotations in 1582.

CAMBRIDGESHIRE is an inland county of England, about fifty miles long and twenty-five miles broad, bounded on the north by Lincolnshire, on the east by Norfolk and Suffolk, on the south by Essex and Herts, and on the west by Bedford and Huntingdonshire. It was included in the ancient territory of the Iceni, and after the Roman conquest was the third province of Flavia Cæsariensis. During the Saxon heptarchy it belonged to the kingdom of the East Angles. Its hundreds are Armingford, Chesterton, Cheveley, Chilford, Flendish, Lougstow, Northstow, Papworth, Redfield, Staine, Staplow, Triplow, Wetherley, Whittlesford, and the Isle of Ely; the latter being under a palatinate jurisdiction pertaining to the see of Ely. In this see is the whole county, with the exception of a small part belonging to that of Norwich. Cambridgeshire contains the city of Ely, nine market towns, viz. Cambridge, Caxton, Linton, March, Newmarket, Soham, Thorney, Wisbeach, and Royston, and 164 parishes.

The county is in general flat and little diversified with engaging prospects; the whole of its northern part is occupied more or less by the fens of the Isle of Ely, penetrated in all directions by drains, and in various stages of redemption from their former swampy state. Here is the great Bedford Level, as it is called, containing 400,000 acres of land; and the towns and villages that are scattered over the surface of the country present their spires and buildings like the towns of a flat island on the ocean, or of an oasis in the African desert; and are to be seen for many miles around. The climate is very different in different parts; in the neighbourhood of the fens it is considered unhealthy and aguish, in the southern parts of the county it is dry and more wholesome. But the most foggy parts have undergone a great melioration of climate of late years, and the same persevering efforts that have redeemed a most promising soil from waste, and given to it the abundant wheat-crops with which it is now crowned, have dissipated the damps and vapors that generated disease. The only rivers of this county are the Cam or Granta, the Nene and the Ouse. The Cambridgeshire canal begins with the Ouse at Harrimere, and runs to Cambridge; the Wisbeach canal joins the Wisbeach river at the old sluice of that town, and opens a communication between this county and Norfolk and Suffolk. The Gogmagog hills, the highest in the county, begin about four miles to the south-east of Cambridge, and form one of the terminations of the range of chalk hills that commence in the south-west of England. Along the district from hence to Newmarket the country is bleak, and inhabited but thinly. Chalk, clunch, as it is called, silt, gault, sand, peat, and gravel, are the substrata of this county. The clunch is a species of limestone. The gault is a blue clay, pertaining to the fenny districts; where also the silt, a fine sea-sand, and peat, are found in great abundance.

Cambridgeshire is chiefly an arable county. Wheat and oats are grown largely in the northern, and barley in the southern, parts. Coleseed also occupies a considerable portion, it has been said a fourth, of the fen lands. It is generally eaten green with sheep. Hemp, flax, mustard-seed, and osiers are also grown largely in this district. The turf is very valuable in some parts; and the garden produce on the borders of the fens is abundant. The breeds of sheep are the Norfolk, west country, and Cambridgeshire; and a cross breed of the Leicester and Lincoln. The farmers also pride themselves much on their large black cart horses.

Cambridgeshire is little distinguished by its manufactures. Oil-mills, for crushing seed and making oil-cake, were once sources of considerable trade at Wisbeach, and still are found at Whittlesford and Sawston; at the last place is also a respectable paper manufactory. Malt is made in considerable quantities in the north-west of the county, and a coarse pottery, together with excellent white bricks, at Ely, Chatteris, and Cambridge.

One of the oldest and most complete specimens of Saxon architecture in this kingdom is found in the conventual church of Ely. It was erected in king Edgar's reign. The two transepts of the cathedral are celebrated specimens of the massy Norman style; the whole of that edifice, indeed, is very interesting to the antiquary. See Ely. Near Chesterton are vestiges of a square Roman camp, called Harborough, or Arbury. Three parts of the vallum remain, and enclose nearly six acres of ground, in which various coins have been discovered; one of which had the head of Rome on one side, and Castor and Pollux on horseback on the other. About four miles to the east of Cambridge, on the Gogmagog hills, are the remains of a circular fort or camp, which has three ramparts and two grafts. It is about 246 paces in diameter, enclosing thirteen acres and a half of land. Some antiquaries have supposed that it was erected by the British as a check to the Romans at Harborough. Southward is a Roman highway. When a road was making from March to Wisbeach, in 1730, three urns were discovered full of burnt bones and ashes, and a pot containing 300 pieces of silver coin, of all the emperors from Vespasian to Antoninus Pius.

No county of England has exhibited more decided improvements in its general appearance than some parts of the county of Cambridge, of late years: none, on the other hand, has experienced more fluctuations in the value of property, and the rise and fall of agricultural produce. The only mansion in the county worth particular notice is Wimpole, the seat of the earl of Hardwicke. It is a spacious brick structure, with noble wings, that have been added since its erection; the east wing is connected with the offices, and the west with a large greenhoure. The entrance is by a double flight of steps. The interior of the fabric is elegant, and has been much improved by the present earl. It is three miles from Caxton.

CAMBYSES, king of Persia, son of Cyrus the Great. He conquered Egypt, and, after having been beaten in some skirmish with the Ethiopians, he found, on returning to Memphis, the Egyptians rejoicing on having found their god Apis, which so provoked him, that he killed their god, and plundered their temples. When he attacked Pelusium, he placed at the head of his army a number of cats and dogs; and the Egyptians refusing to kill animals which they reverenced as divinities, became an easy prey. Cambyses afterwards sent an army of 50,000 men to destroy Jupiter Ammon's temple, but it was overwhelmed by the sands. He next resolved to attack the Carthaginians and Ethiopians. He killed his brother Smerdis from mere suspicion, and flayed alive a partial judge, whose skin he nailed on the judgment seat, and appointed his son to succeed him, telling him to remember where he sat. He died of a small wound he had given himself with his sword as he mounted on horseback, A.C. 521.; and the Egyptians observed, that it was the same place on which he had wounded their god Apis, and that therefore he was visited by the hand of the gods. A short time before his death, having been reproved by one of his courtiers in the most delicate manner for his intemperance, he shot the censurer's son to the heart with an arrow, and then asked the father if he had not a steady hand, though intoxicated.

CAMCHATKA. See Kamtschatka.

CAMDEN, a county of the United States, in Edenton district, North Carolina; bounded north by the state of Virginia, south-west and west by Pasquotank river, which separates it from Pasquotank county, and east by Currituck. The chief town is Jonesborough.

Camden, a district of South Carolina, bounded on the north-east by Cheraws, south-east by George-town, north by the state of North Carolina, north-west by Pinkney, west by Ninety-Six, south-west by Orangeburgh, and south by Charleston district. It is eighty-two miles from north to south, and sixty from east to west, and is divided into the following counties, viz. Fairfield, Richland, Lancaster, Kershaw, Clermont, Clarendon, and Salem. It is watered by the Catabaw, which passes nearly through the middle of it. In the north part of the district are the Catabaw Indians; the only tribe which resides in the state. See Catabaw. The upper part of this district is diversified with hills, the soil in general rich, and the country well watered. It produces good crops of Indian corn, wheat, rye, barley, tobacco, cotton, &c.

Camden, a post town of South Carolina, and capital of the district. It is situated in Kershaw county, on the east side of the Wateree, 120 miles north by west of Charleston. It has a court house, jail, and Episcopalian church. It is situated on a large navigable river, and carries on a brisk trade with the back counties. A district court is held here on the 26th of April and November. A battle was fought at this town on the 16th August, 1780, between general Gates and lord Cornwallis; in which the Ame-

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Camden (William), the great antiquary, was born in London in 1551. His father was a native of Litchfield, and his mother was of the ancient family of Curwens in Cumberland. He was educated at Christ's hospital, and St. Paul's school; and from thence sent, in 1566, to Oxford, and entered servitor of Magdalen College; but, being disappointed of a demy's place, he removed to Broadgate hall, and two years after, to Christ Church, where he was supported by his friend Dr. Thornton. About this time he was a candidate for the fellowship of All-souls College, but lost it by the intrigues of the Popish party. In 1570, he supplicated the regents of the university to be admitted B. A. but in this also he miscarried. The following year he came to London, where he prosecuted his favorite study of antiquity, under Dr. Goodman, dean of Westminster, by whose interest he was made second master of Westminster school, in 1575. Between his leaving the university and this period, he took several journeys to different parts of England, to collect materials for his Britannia, in which he was now deeply engaged. In 1581 he became intimately acquainted with the learned president Brisson, who was then in England; and in 1586 he published the first edition of his Britannia, dedicated to lord Burleigh; and such was its reception, that eight editions of it were published in four years, and another in 1594. The title is Britannia, sive Florentissimorum Regnorum Angliæ, Scotiæ, Hiberniæ, et Insularum Adjacentium, ex intima Antiquitate, Chorographica Descriptio. In 1593 he succeeded to the head master of Westminster school. In 1597 he published his Greek grammar, and was appointed Clarencieux king at arms. In 1600 he made a tour as far as Carlisle, accompanied by his friend, Mr. (afterwards Sir Robert) Cotton. In 1606 he began his correspondence with De Thou, which continued to the death of that historian. In 1607 he published his last edition of the Britannia, which is that from which the English translations have been made; and in 1608 he began to digest his materials for a history of the reign of queen Elizabeth. In 1609, after recovering from a dangerous illness, he retired to Chislehurst in Kent, where he continued to spend the summer during the remainder of his life. The first part of his annals of the queen did not appear till 1615, and he determined that the second volume should not appear till after his death. The reign of queen Elizabeth was so recent when his first volume was published, that many of the persons concerned, or their dependents, were still living. It is no wonder, therefore, that the historian should offend those whose actions would not bear enquiry. Some of his enemies were clamorous and troublesome; which determined him not to publish the second volume during his life; but he deposited one copy in the Cottonian library, and transmitted another to his friend Dupuy at Paris. It was first printed at Leyden in 1625. The MS. was entirely finished in 1617; and from that time he was principally employed in collecting more materials for the further improvement of his Britannia. In 1622, being now upwards of seventy, and finding his health declining, he determined to execute his design of founding an history lecture in the university of Oxford. His deed of gift was accordingly transmitted by his friend Mr. Heather, to Mr. Wheare, who was, by himself, appointed his first professor. He died at Chislehurst, in 1623, in the seventy third year of his age; and was buried in Westminster Abbey, where a monument of white marble was erected to his memory.

CAM'EL, *n.*
Cam'el-backed,
Cam'el-driver.
Camel'opard.
} Arab. *qumel*, *boogumelon*, *gimel*; Heb. *gamal*, *καμηλος*; Lat. *camelus*, a large animal; common in Asia and Africa. The one sort is large, and full of flesh, and fit to carry burdens of a thousand pounds weight, having one bunch upon its back. The other have two bunches upon their backs, like a natural saddle, and are fit either for burdens, or men to ride on. A third kind is leaner, and of a smaller size, called dromedaries, because of their swiftness, which are generally used for riding by men of quality. The camelopard (Lat. *camelus* and *pardus*) is an Abyssinian animal, taller than an elephant, but not so thick. He is so named, because he has a neck and head like a camel; he is spotted like a pard, but his spots are white upon a red ground. The Italians call him giraffa. See Camelus.

Woo to you scribis and farisees ypocritis,—blynde lederis, clensynge a gnatte, but swolowynge a *camel*.

Wickliff's New Test. Matt. 23.

Camels have large solid feet, but not hard. *Camels* will continue ten or twelve days without eating or drinking, and keep water a long time in their stomach, for their refreshment. *Calmet.*

In silent horrour o'er the boundless waste,
The driver, Hassan, with his *camels* past:
One cruise of water on his back he bore,
And his light scrip contained a scanty store;
A fan of painted feathers in his hand
To guard his shaded face from scorching sand.

Collins' Eclogue, ii.

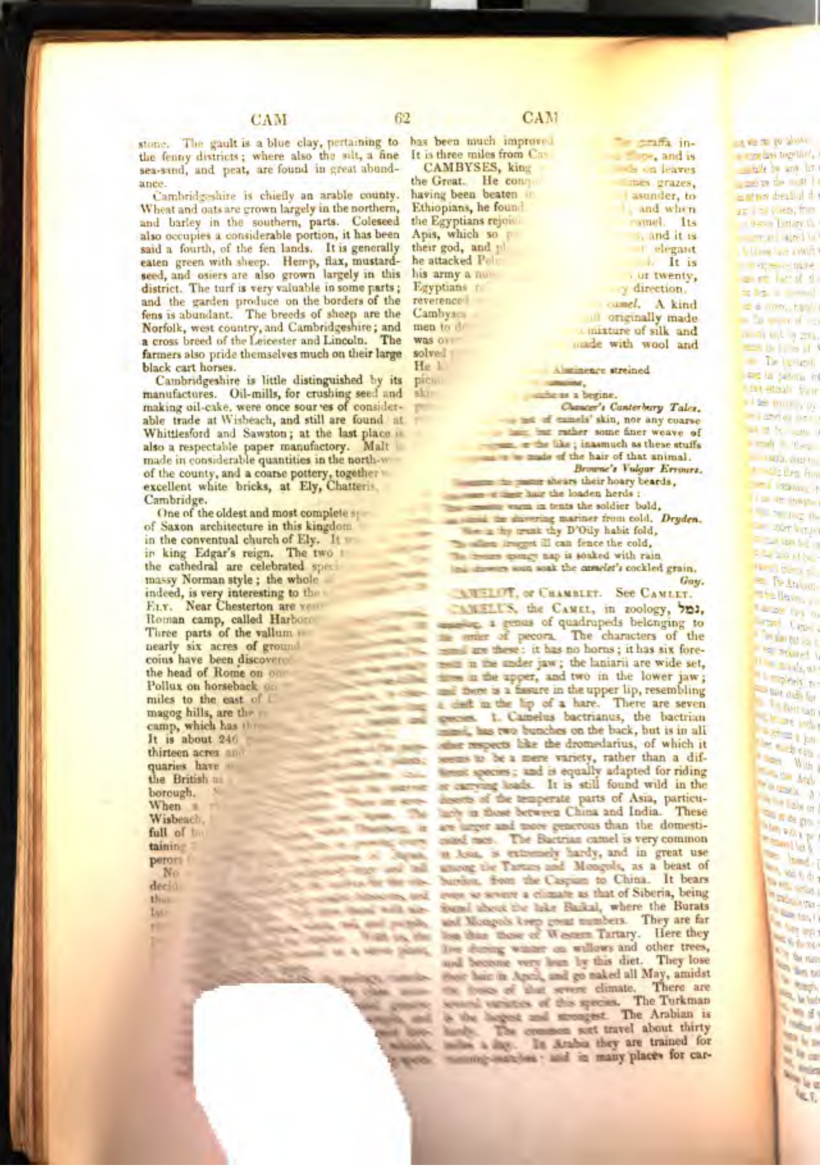
Patient of thirst and toil,
Son of the desart! even the *camel* feels,
Shot through his withered heart, the fiery blast.

Thomson.

The stomach of the *camel* is well known to contain large quantities of water, and to retain it unchanged for a considerable length of time. This properly qualifies it for living in the desert.

Paley's Natural Theology.

Camel, in mechanics, a kind of machine used in Holland for lifting ships, in order to bring them over the Pampus, at the mouth of the river Y, where the shallowness of the water hinders large ships from passing. It is also used in other places, particularly at the dock of Petersburgh, the vessels built there being, in



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[illegible] giraffa in-[illegible], and is [illegible] on leaves [illegible] grazes, [illegible] asunder, to [illegible], and when [illegible] camel. Its [illegible], and it is [illegible] elegant [illegible]. It is [illegible] or twenty, [illegible] direction.

[illegible] camel. A kind [illegible] originally made [illegible] mixture of silk and [illegible] made with wool and [illegible]

[illegible] Abstinence streined
[illegible],
[illegible] as a begine.
Chaucer's Canterbury Tales.

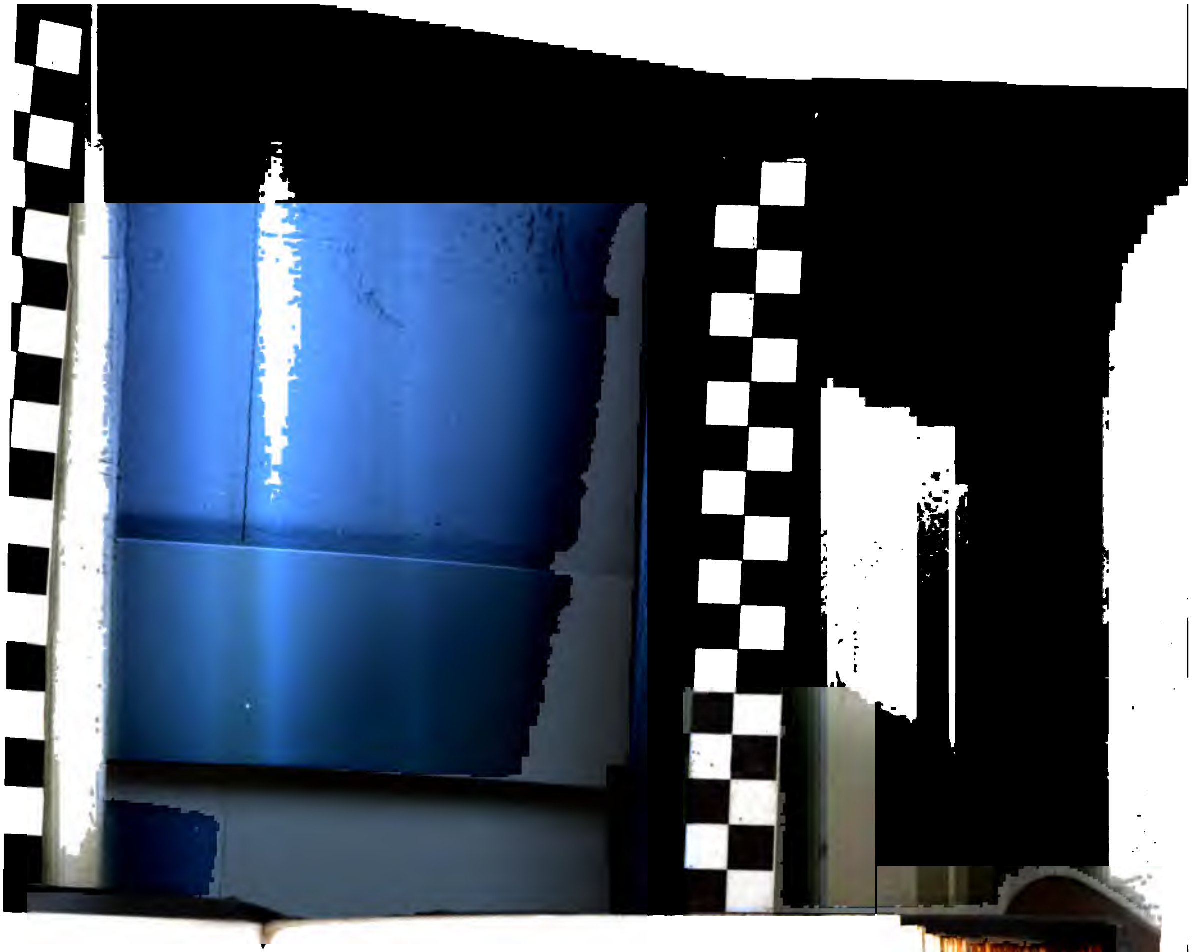
[illegible] of camels' skin, nor any coarse [illegible] but rather some finer weave of [illegible] or the like; inasmuch as these stuffs [illegible] made of the hair of that animal.
Browne's Vulgar Errours.

[illegible] shears their hoary beards,
[illegible] hair the loaden herds:
[illegible] warm in tents the soldier bold,
[illegible] the shivering mariner from cold. *Dryden.*

[illegible] thy trunk thy D'Oily habit fold,
[illegible] drugget ill can fence the cold,
[illegible] spongy nap is soaked with rain
[illegible] soon soak the *camelet's* cockled grain.
Gay.

[illegible], or CHAMBLET. See CAMLET.

[illegible], the CAMEL, in zoology, גמל, [illegible] a genus of quadrupeds belonging to [illegible] order of pecora. The characters of the [illegible] are these: it has no horns; it has six fore-[illegible] in the under jaw; the laniarii are wide set, [illegible] in the upper, and two in the lower jaw; and there is a fissure in the upper lip, resembling a cleft in the lip of a hare. There are seven species. 1. Camelus bactrianus, the bactrian camel, has two bunches on the back, but is in all other respects like the dromedarius, of which it seems to be a mere variety, rather than a different species; and is equally adapted for riding or carrying loads. It is still found wild in the deserts of the temperate parts of Asia, particularly in those between China and India. These are larger and more generous than the domesticated race. The Bactrian camel is very common in Asia, is extremely hardy, and in great use among the Tartars and Mongols, as a beast of burden, from the Caspian to China. It bears even so severe a climate as that of Siberia, being found about the lake Baikal, where the Burats and Mongols keep great numbers. They are far less than those of Western Tartary. Here they live during winter on willows and other trees, and become very lean by this diet. They lose their hair in April, and go naked all May, amidst the frosts of that severe climate. There are several varieties of this species. The Turkman is the largest and strongest. The Arabian is hardy. The common sort travel about thirty miles a day. In Arabia they are trained for running-matches; and in many places for car-



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MBYSES, king of Persia, son
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requiring the least liquid; and
under hunger is such that they
travel many days fed only with a few dates,
some small balls of bean or barley-meal, or
on the miserable thorny plants they meet with in the deserts. The Arabians regard the camel as a present from Heaven, a sacred animal, without whose assistance they could neither carry on trade, nor travel. Camel's milk is their common food. They also eat its flesh, that of the young camel being reckoned highly savory. Of the hair of those animals, which is fine and soft, and which is completely renewed every year, the Arabians make stuffs for clothes, and other furniture. With their camels, they not only want nothing, but have nothing to fear. In one day, they can perform a journey of fifty leagues into the desert, which cuts off every approach from their enemies. With a view to his predatory expeditions, the Arab instructs, rears, and exercises his camels. A few days after their birth, he folds their limbs under their belly, forces them to remain on the ground, and, in this situation, loads them with a pretty heavy weight, which is never removed but for the purpose of replacing a greater. Instead of allowing them to feed at pleasure, and to drink when they are dry, he begins with regulating their meals, and makes them gradually travel long journeys, diminishing, at the same time, the quantity of their aliment. When they acquire some strength, they are trained to the course. He excites their emulation by the example of horses, and, in time, renders them more robust. After he is certain of the strength, fleetness, and sobriety of his camels, he loads them with his own and their food, sets off with them, reaches unperceived the confines of the desert, robs the first passengers he meets, pillages the solitary houses, loads his camels with the booty, and, if pursued, accelerates his retreat. On these occasions he unfolds his own talents and those of the camels. He mounts one of the fleetest, conducts the troop, and makes them travel night and day, almost without either stopping, eating, or drinking; and, in this manner, he easily performs a journey of 900 miles in eight days. During this period of fatigue, they are perpetually loaded, and he allows them each day, one hour only of repose, and a ball of paste. They often run thus nine or ten days, without drink; and when, by chance, there is a pool at some distance, they scent the water half a league off. Thirst makes them double their pace, and they drink as much at once as serves them for the future as well as the past; for their journeys often last several weeks, and their abstinence continues an equal time. Of all carriages, that by camels is the cheapest and most expeditious. The merchants and other passengers unite in a caravan, to prevent the insults and robberies of the Arabs. These caravans are often very numerous, and are always composed of more camels than men. Each camel is loaded in proportion to his strength; and, when overloaded, he refuses to march, and continues lying till his burden is lightened. The large camels generally carry 1000 or 1200 pounds weight, and the smallest from 600 to 700. In these commercial travels, their march is not hastened; as the route is often 700 or 800 leagues, their motions and journeys are regulated. They walk only, and perform from about ten to twelve leagues each day. Every night they are unloaded, and allowed to pasture at freedom. When in a rich country, or fertile meadow, they eat, in less than an hour, as much as serves them to ruminate the whole night, and to nourish them twenty-four hours. But they seldom meet with such pastures; neither is this delicate food necessary for them. They even seem to prefer wormwood, thistles, nettles, broom cassia, and other prickly vegetables, to the softest herbage. As long as they find plants to browse they easily dispense with drink. This facility of abstaining long from drink proceeds not, however, from habit alone, but is rather an effect of their structure. Independent of the four stomachs, which are common to ruminating animals, the camels have a fifth bag, which serves them as a reservoir for water. This fifth stomach is peculiar to the camel. It is so large as to contain a vast quantity of fluid, where it remains without corrupting, or mixing with other aliments. When the animal is pressed with thirst, and has occasion for water to macerate his dry food in ruminating, he makes part of this water mount into his paunch, or even as high as the œsophagus, by a simple contraction of certain muscles. It is by this singular construction that the camel is enabled to pass several days without drinking, and to take at a time a prodigious quantity of water. Travellers, when much oppressed with drought, are sometimes obliged to kill their camels in order to have a supply of drink from these reservoirs. These inoffensive creatures must suffer much; for they utter the most lamentable cries, especially when overloaded. But though perpetually oppressed, their fortitude is equal to their docility. At the first signal, they bend their knees and lie down to be loaded.

As soon as they are loaded, they rise spontaneously, and without any assistance. One of them is mounted by their conductor, who goes before, and regulates the march of all the followers. They require neither whip nor spur. But, when they begin to be tired, their courage is said to be supported, or rather their fatigue is charmed, by singing, or by the sound of some instrument. Their conductors relieve each other in singing; and, when they want to prolong the journey, they give the animals but one hour's rest, after which, resuming their song, they proceed on their march for several hours more, and the singing is continued till they arrive at another resting place, when the camels again lie down; and their loads, by unloosing the ropes, are allowed to glide off on each side of the animals. Thus they sleep on their bellies in the middle of their baggage, which, next morning, is fixed on their backs with equal quickness and facility as it had been detached the evening before. One male only is left for eight or ten females; and the laboring camels are generally geldings. They are unquestionably weaker than unmutilated males; but are more tractable, and always ready for service; while the former are not only unmanageable, but almost furious, during the rutting season, which lasts forty days, and returns annually in the spring. They then foam continually, and one or two red vesicles, as large as a hog's bladder, issue from their mouths. In this season they eat little, and attack and bite animals, and even their own masters, to whom at all other times they are very submissive. The time of gestation is near twelve months; and like all large quadrupeds, the female brings forth only one at a birth. Her milk is copious and thick; and when mixed with a large quantity of water, affords an excellent nourishment to men. The females are not obliged to labor, but are allowed to pasture and produce at full liberty. The advantage derived from their produce and their milk is perhaps superior to what could be drawn from their working. In some places, however, most of the females are castrated, to fit them for labor; and it is alleged, that this operation, instead of diminishing augments their vigor and plumpness. In general, the fatter camels are, the more they are capable of enduring fatigue. During long journeys, in which their conductor is obliged to husband their food, and when they often suffer much hunger and thirst, their bunches gradually diminish, and become so flat, that the place where they were is only perceptible by the length of the hair, which is always longer on these parts than on the rest of the back. The meagreness of the body augments in proportion as the bunches decrease. The Moors, who transport all articles of merchandise from Barbary and Numidia, as far as Ethiopia, set out with their camels well laden, which are very fat and vigorous; and bring back the same animals so meagre that they commonly are sold at a low price to the Arabs of the desert, to be again fattened. Ancient authors assert, that camels are in a condition for propagating at the age of three years; but this is doubtful, for, in three years, they have not acquired one-half their growth. The young camel sucks twelve months, but, when meant to be trained, to render him strong and robust in the chase, he is allowed to suck and pasture at freedom during the first year, and is not loaded or made to perform any labor till he is four year old. He generally lives forty and sometimes fifty years, which duration of life is proportioned to the time of his growth. Considering, under one point of view, all the qualities of this animal, and all the advantages derived from him, it must be acknowleged, that he is the most useful creature subjected to the service of man. Gold and silk constitute not the true riches of the East. The camel is the genuine treasure of Asia. 2. Camelus dromedarius, the Arabian camel, with one bunch or protuberance on the back. It has four callous protuberances on the fore legs, and two on the hind ones. This species is common in Africa, and the warmer parts of Asia. It is a common beast of burden in Egypt, and along the countries which border on the Mediterranean Sea; in Morocco, Sahara, or the Desert, and Ethiopia; but nowhere south of those kingdoms. In Asia it is equally common in Turkey or Arabia; but scarcely seen farther north than Persia, being too tender to bear a more severe climate. India is destitute of this animal. 3. Camelus glama, or llama, the South American camel sheep, has an almost even black, small head, fine black eyes, and very long neck bending much, and very protuberant near the junction with the body; in a tame state, with smooth short hair; in a wild state, with long coarse hair, white, gray, and russet, disposed in spots; with a black line from the head along the top of the back to the tail, and belly white. The tail is short; the height from four to four feet and a half; the length from the neck to the tail, six feet. In general the shape exactly resembles a camel, only it wants the dorsal bunch. It is the camel of Peru and Chili; and, before the arrival of the Spaniards, was the only beast of burden known to the Indians. It is very mild, gentle, and tractable. Before the introduction of mules, they were used by the Indians to plough the land: at present they serve to carry burdens of about 100lbs. They lie down to the burden; and when wearied no blows can provoke them to go on, and nothing but caresses can make them arise. Their flesh is eaten, and is said to be as good as mutton. The wool has a strong disagreeable scent. They are very surefooted, and are, therefore, used to carry the Peruvian ores over the ruggedest hills and narrowest paths of the Andes. They inhabit that vast chain of mountains through their whole length to the straits of Magellan; but, except where these hills approach the sea, as in Patagonia, never appear on the coasts. Like the camel, they have powers of abstaining long from drink, sometimes for four or five days; like that animal, their food is coarse. In a wild state they keep in great herds in the highest and steepest parts of the hills; and while they are feeding, one keeps sentry on the pinnacle of some rock: if it perceives the approach of any one it neighs; the herd take the alarm, and go off with incredible speed. They outrun all dogs: there is no way of killing them but with the gun. They are killed for the sake of their flesh and hair; for the Indians weave the last into cloth. The huanaco, the arcucanus, and the vicuna, so nearly resemble this animal, that they by no means merit a separate description.

4. Camelus pacos, or the sheep of Chili, has no bunch on its back. It is covered with a fine valuable wool, which is of a rose red color on the back of the animal, and white on the belly. They are of the same nature with the llama, inhabit the same places, but are more capable of supporting the rigor of frost and snow; they live in vast herds, are very timid, and excessively swift. The Indians take the pacos in a strange manner; they tie cords with bits of cloth or wool hanging on them, about three or four feet from the ground, across the narrow passes of the mountains, then drive those animals towards them, which are so terrified by the flutter of the rags that, huddling together, they give the hunters an opportunity to kill with their slings as many as they please. The tame ones will carry from fifty to seventy-five pounds, but are kept principally for the sake of the wool and the flesh, the latter of which is exceedingly well tasted.

Camelus, in zoology, a species of trichoda, found in vegetable infusions. This is thickish, hairy before, and emarginate on each side in the middle.

Camelus, in entomology, a species of scarabæus; thorax four-horned; shield bicornuted behind; body black. Inhabits Germany.

CAMEO. See Camaieu.

CAMERA Æolia, a contrivance for blowing the fire for the fusion of ores, without bellows, by means of water falling through a funnel into a close vessel, which sends from it so much air as continually blows the fire if there be the space of another vessel for it to expatiate in by the way, as it there lets fall its humidity. See Blowing Machine.

Camera Lucida, a contrivance of Dr. Hook for making the image of any thing appear on a wall in a light room, either by day or night. Opposite to the place or wall where the appearance is to be, make a hole of at least a foot in diameter, or if there be a high window with a casement opened. At a convenient distance, to prevent its being perceived by the company in the room, place the object or picture intended to be represented, but in an inverted situation. If the picture be transparent, reflect the sun's rays by means of a looking-glass, so as that they may pass through it towards the place of representation; and to prevent any rays from passing aside it, let the picture be encompassed with some board or cloth. If the object be a statue, or a living creature, it must be much enlightened by casting the sun's rays on it, either by reflection, refraction, or both. Between this object and the place of representation put a broad convex glass, ground to such a convexity as that it may represent the object distinctly in such place. The nearer this is situated to the object the more will the image be magnified on the wall, and the further the less; such diversity depending on the difference of the spheres of the glasses. If the object cannot be conveniently inverted, there must be two large glasses of proper spheres, situated at suitable distances, easily found by trial, to make the representations erect. The whole apparatus of object-glasses, &c. with the person employed in the management of them, are to be placed without the window or hole, so that they may not be perceived by the spectators in the room, and the operation itself will be easily performed.

Camera Lucida is also the name of an instrument for taking views, invented by Dr. Wollaston in 1807. We shall copy his own description of this ingenious invention.

'While I look directly down at a sheet of paper on my table, if I hold between my eye and the paper a piece of plane glass, inclined from me downwards at an angle of 45°, I see by reflection the view that is before me, in the same direction that I see my paper through the glass. I might then take a sketch of it; but the position of the object would be reversed.

To obtain a direct view it is necessary to have two reflections. The transparent glass must for this purpose be inclined to the perpendicular line of sight only the half of 45°, that it may reflect the view a second time from a piece of looking-glass placed beneath it, and inclined upwards at an equal angle. The objects now appear as if seen through the paper in the same place as before; but they are direct instead being inverted, and they may be discerned in this manner sufficiently well for determining the principal positions.

The pencil, however, and any object which it is to trace, cannot both be seen distinctly in the same state of the eye, on account of the difference of their distances; and the efforts of successive adaptation of the eye, to one or the other, would become painful if frequently repeated. In order to remedy this inconvenience, the paper and pencil may be viewed through a convex lens of such a focus as to require no more effort than is necessary for seeing the distant objects distinctly. These will then appear to correspond with the paper in distance as well as direction, and may be drawn with facility, and with any desired degree of precision.

This arrangement of glasses will probably be best understood from inspection of plate II., fig. 1., *a b* is the transparent glass; *b c* the lower reflector; *b d* a convex lens (of twelve inches focus); *e* the position of the eye; and *f g h e* the course of the rays.

In some cases a different construction will be preferable. Those eyes, which without assistance are adapted to seeing near objects alone, will not admit the use of a convex glass; but will, on the contrary, require one that is concave to be placed in front, to render the distant objects distinct. The frame for a glass of this construction is represented at *i k*, fig. 3, turning upon the same hinge at *h*, with a convex glass in the frame *l m*, and moving in such a manner, that either of the glasses may be turned alone into its place, as may be necessary to suit an eye that is long or short sighted. Those persons, however, whose sight is nearly perfect, may at pleasure use either of the glasses.

The instrument represented in that figure differs, moreover, in other respects from the foregoing, which I have chosen to describe first, because the action of the reflectors there employed would be more generally understood. But those who are conversant with the science of optics will perceive the advantage that may be derived in this instance from prismatic reflection; for when a ray of light has entered a solid piece of glass, and falls from within upon any surface, at an inclination of only twenty-two or twenty-three degrees, as above supposed, the refractive power of the glass is such as to suffer none of that light to pass out, and the surface becomes in this case the most brilliant reflector that can be employed.

Fig. 2. represents the section of a solid prismatic piece of glass, within which both the reflections requisite are effected at the surfaces ab, bc, in such a manner that the ray fg, after being reflected first at g, and again at h, arrives at the eye in a direction he at right angles to fg.

There is another circumstance in this construction necessary to be attended to, and which remains to be explained. Where the reflection was produced by a piece of plane glass, it is obvious that any objects behind the glass, if sufficiently illuminated, might be seen through the glass as well as the reflected image. But when the prismatic reflector is employed, since no light can be transmitted directly through it, the eye must be so placed that only a part of its pupil may be intercepted by the edge of the prism, as at e, fig. 2. The distant objects will then be seen by this portion of the eye, while the paper and pencil are seen past the edge of the prism by the remainder of the pupil.

In order to avoid the inconvenience that might arise from an unintentional motion of the eye, the relative quantities of light to be received from the object, and from the paper, are regulated by a small hole in a piece of brass, which by moving on a centre at c, fig. 3., is capable of adjustment to every inequality of light that is likely to occur.

Since the size of the whole instrument, from being so near the eye, does not require to be large, I have, on many accounts, preferred the smallest size that could be executed with correctness, and have had it constructed on such a scale, that the lenses are only three-fourths of an inch in diameter.

Though the original design and principal use of this instrument is to facilitate the delineation of objects in true perspective, yet this is by no means the sole purpose to which it is adapted; for the same arrangement of reflectors may be employed with equal advantage for copying what has been already drawn, and may thus assist a learner in acquiring at least a correct outline of any subject.

For this purpose, the drawing to be copied should be placed as nearly as may be at the same distance before the instrument that the paper is beneath the eye-hole; for in that case the size will be the same, and no lens will be necessary, either to the object or to the pencil.

By a proper use of the same instrument, every purpose of the pentagraph may also be answered, as a painting may be reduced in any proportion required, by placing it at a distance in due proportion, greater than that of the paper from the instrument. In this case a lens becomes requisite for enabling the eye to see at two unequal distances with equal distinctness; and in order that one lens may suit for all these purposes, there is an advantage in carrying the height of the stand according to the proportion in which the reduction is to be effected.

The principles upon which the height of the stem is adjusted will be readily understood by those who are accustomed to optical considerations. For as in taking a perspective view, the rays from the paper are rendered parallel, by placing a lens at the distance of its principal focus from the paper, because the rays received from the distant objects are parallel; so also when the object seen by reflection is at so short a distance that the rays received from it are, in a certain degree, divergent, the rays from the paper should be made to have the same degree of divergency, in order that the paper may be seen distinctly by the same eye; and for this purpose, the lens must be placed at a distance less than its principal focus. The stem of the instrument is accordingly marked at certain distances, to which the conjugate foci are in the several proportions of two, three, four, &c. to one; so that distinct vision may be obtained in all cases, by placing the painting proportionably more distant.

By transposing the convex lens to the front of the instrument, and reversing the proportional distances, the artist might also enlarge his smaller sketches with every desirable degree of correctness, and the naturalist might delineate minute objects in any degree magnified.

Since the primary intention of this instrument is already, in some measure, answered by the camera obscura, a comparison will naturally be made between them.

The objections to the camera obscura are,

1st. That it is too large to be carried about with convenience.

The camera lucida is as small and portable as can be wished.

2dly, In the former, all objects that are not situated near the centre of view are more or less distorted.

In this there is no distortion; so that every line, even the most remote from the centre of view, is as straight as those through the centre.

3dly, In that the field of view does not extend beyond 30°, or at most 35° with distinctness.

But in the camera lucida as much as 70° or 80° might be included in one view.

It is obvious, that the preceding contrivance may be applied to a telescope, for the purpose of taking sketches of the different objects that may be contained within the field of view; but as it is only a small portion of a landscape, or of any large object, that can be seen at once through a telescope, it would be desirable to have some contrivance by which the objects seen in different fields of view, and sketched upon the same piece of paper, might be all connected with each other into one landscape. This, however, can be done only to a certain extent, as will appear from plate II. fig. 4. Let A B be the direction of the telescope, which, when placed upon a suitable stand, can be moved round the axis O in a horizontal plane, $B\,b\,b'$; B, the extremity of the eye-tube at which the prism of the camera lucida is fixed; M N, the paper lying in a horizontal po-

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sition; and a b, a′ b′, successive positions of the telescope in a plane parallel to M N. Let E F be the field of view of the telescope, when seen on the paper by reflection from the prism; then the instrument must be so constructed, that when the telescope is in the position a b, and directed to the part of the landscape immediately adjacent to that which is contained in the field E F, the field of view F G, when seen by reflection from the prism, must be in contact with E F. When this happens we have B b = C c, and the angle B F b = E B F the angle subtended by the field of view; but it is obvious, that when the telescope is moved from the position A B into the position a b, its angular motion round O, viz. the angle B O b, is equal to an angle comprehended by the field of view, that is, to the angle B F E; therefore, in the triangles O B b, B F b, we have the angles at O and F equal, and the side B b common; and consequently the side O B is equal to the side B C. From this it follows, that, in order to have the successive fields of view, E F, F G, G H, all joined to each other, or at their proper relative distances, the distance of the eye from the paper must be equal to its distance from the centre of motion O, round which the telescope revolves. The telescope should therefore be placed upon a stand, so constructed that the centre of motion, O, may be placed in different positions between the eye-piece and the object-glass; by which means, the observer may vary the distance of the paper from his eye, according as he wishes to have his drawing on a large or a small scale. By the instrument, when thus constructed, we are enabled to take a connected panoramic view of any horizontal zone of a landscape, whose breadth does not exceed the field of view of the telescope. The objects contained in the different fields of view, will be arranged in a circle whose diameter is equal to the distance of the eye from the centre of motion.

This instrument is admirably fitted for taking a correct outline of the visible horizon, with all the various indentations with which that line is generally broken by the intervention of valleys and mountains. Unless the horizon is extremely and unusually contracted, the field of view of a common telescope will contain a zone which will easily comprehend every depression and elevation; and even when the place of the observer is embosomed in an amphitheatre of mountains which rise around him with various elevations, the field of view may be enlarged by diminishing the magnifying power of the telescope. For this purpose, the micrometrical telescope, invented by Dr. Brewster, is particularly applicable, as the magnifying power can be increased or diminished without changing any of the lenses; and as the distance between the eye and the centre of motion, O, can be altered, even though the telescope is fixed to its stand. The micrometrical telescope having also the properties of a compound microscope, any long object which cannot be contained in the field of view, in the direction of its length, may be delineated in a similar manner. This contrivance cannot be applied to the common compound microscope, as it has not a motion round an axis.

The camera lucida of Dr. Wollaston might be fitted up with a horizontal motion, and without the aid of a telescope, so as to delineate one continued zone of a landscape; but when the objects are small, or at a considerable distance, a telescope becomes indispensably necessary. See the *Philosophical Magazine*, vol. xxvii. p. 343; *Nicholson's Journal*, vol. xvii. p. 1., vol. xxiii. p. 372, vol. xxiv. p. 146; and *Brewster's Treatise on New Philosophical Instruments*, Edinb. 1812, book i. p. 11, book iii. p. 133, and book vi.

Camera Obscura, Latin, the dark chamber, an optical machine, used in a darkened chamber, so that the light coming only through a double convex glass, objects exposed to day-light, and opposite to the glass, are represented inverted upon any white matter placed in the focus of the glass. It was invented by Baptista Porta. It affords very diverting spectacles, both by exhibiting images perfectly like their objects, and each clothed in its native colors, and by expressing, at the same time, all their motions; which latter no other art can imitate. By means of this instrument, a person unacquainted with designing will be able to delineate objects with the greatest accuracy and justness. See Optics.

CAM'ERADE, *n. s.* Lat from *camera*, chamber. One that lodges in the same chamber; a bosom companion. By corruption we now use comrade.

Camerades with him, and confederates in his design. *Rymer.*

CAMERARIA, in botany: a genus of the monogynia order, and pentandria class of plants; natural order, thirtieth, contortæ: cor. contorta; two horizontal follicles at the base of the seed-case, and the seeds are inserted into a proper membrane. There are four species; the principal are 1 C. angustifolia has an irregular shrubby stalk, which rises about eight feet, sending out many branches, garnished with very narrow thin leaves, placed opposite, at each joint. The flowers are produced scatteringly at the end of the branches, which are shaped like those of the latifolia, but smaller. It is a native of Jamaica. 2. C. latifolia, a native of the island of Cuba. It rises with a shrubby stalk to ten or twelve feet, dividing into several branches, garnished with roundish pointed leaves placed opposite. The flowers are produced at the end of branches in loose clusters, which have long tubes enlarging gradually upward, and at the top are cut into five segments, broad at the base, but ending in sharp points; the flower is of a yellowish white color. Both these plants abound with an acrid milky juice like the spurge. They are propagated by seeds, which must be procured from the places of their growth. They may also be produced by cuttings planted in a hot-bed during summer: they must have a bark stove for they are very tender, but in warm weather they must have plenty of air.

CAMERARIUS (Joachim), one of the most learned writers of his time, was born in 1500, at Bamberg, in Franconia. He embraced the reformation very early, and formed a close friendship with Melancthon, whose life he wrote. On the establishment of a college at Nuremburg, Camerarius was made professor of belles lettres. He afterwards removed to Leipsic to superintend the university, where he died in 1575. He translated into Latin, Herodotus, Demosthenes, Xenophon, Euclid, Homer, Theocritus, Sophocles, Lucian, Theodoret, Nicephorus, &c. He published a catalogue of the bishops of the principal sees; Greek Epistles; Accounts of his Journeys, in Latin verse; a Commentary on Plautus; the Lives of Helius Eobanus Hessus, and Philip Melancthon, &c.

CA'MERATED, *adj*. Lat. *cameratus*, arched; roofed slopewise.

CAM'ERATION, *n. s.* Lat. *cameratio*; a vaulting or arching.

CAMERLINGO, denotes the cardinal who governs the ecclesiastical state, and administers justice. It is the most eminent office at the court of Rome, because he is at the head of the treasury. During a vacation of the papal chair, the cardinal camerlingo publishes edicts, coins money, and exerts every other prerogative of a sovereign prince; he has under him a treasurer-general, auditor-general, and twelve prelates, called clerks of the chamber.

CAMERON (John), one of the most famous divines among the Protestants of France, in the seventeenth century, was born at Glasgow, in 1580, where he taught the Greek tongue; and having read lectures upon that language for about a year, travelled, and became professor and minister at Bourdeaux, Sedan, and Saumur, at which last place he broached his doctrine of grace and free will, which was framed by Amyraut, Cappel, Bochart, Daille, and others of the more learned among the reformed ministers, who judged Calvin's doctrines on these points too harsh. He published, 1. Theological Lectures; 2. Icon Johannis Cameronis; and some miscellaneous pieces. He died in 1625, aged sixty.

CAMERON (Richard), the founder of the Scots Cameronians, was a famous field-preacher, who, refusing to accept the indulgence to tender consciences, granted by king Charles II., thinking such an acceptance an acknowledgment of the king's supremacy, and that he had before a right to silence them, made a defection from his brethren, and even headed a rebellion, in which he was killed.

CAMERONIANS, a sect in Scotland, who separated from the Presbyterians in 1666, and continued long to hold their religious assemblies in the fields. The Cameronians took their denomination from Richard Cameron. They were never entirely reduced till the Revolution, when they voluntarily submitted to king William. The Cameronians adhere rigidly to the form of government established in 1648. They are also called Cargillites, from another of their preachers. There are not, it is said, above fourteen or fifteen congregations among them, and those not large.

CAMERONITES, a party of Calvinists in France, who asserted that the will of man is only determined by the practical judgment of the mind; that the cause of men's doing good or evil proceeds from the knowledge which God infuses into them; and that God does not move the will physically, but only morally, in virtue of its dependence on the judgment of the mind They were so named from professor John Cameron. They are a sort of mitigated Calvinists, and approach to the opinion of the Arminians.

CAMES, a name given to the small slender rods of cast lead, of which the glaziers make their turned lead. The lead being cast into slender rods of twelve or fourteen inches long each, is called the came; sometimes also they call each of these rods a came, which, being afterwards drawn through their vice, makes their turned lead.

CAMILLA, queen of the Volsci, daughter of Metablus and Camilla, was educated in the woods, inured to the labors of hunting, and fed upon the milk of mares. Her father devoted her, when young, to the service of Diana. When she was declared queen, she marched at the head of an army, accompanied by three youthful females like herself, to assist Turnus against Æneas, where she signalised herself by the numbers that perished by her hand.

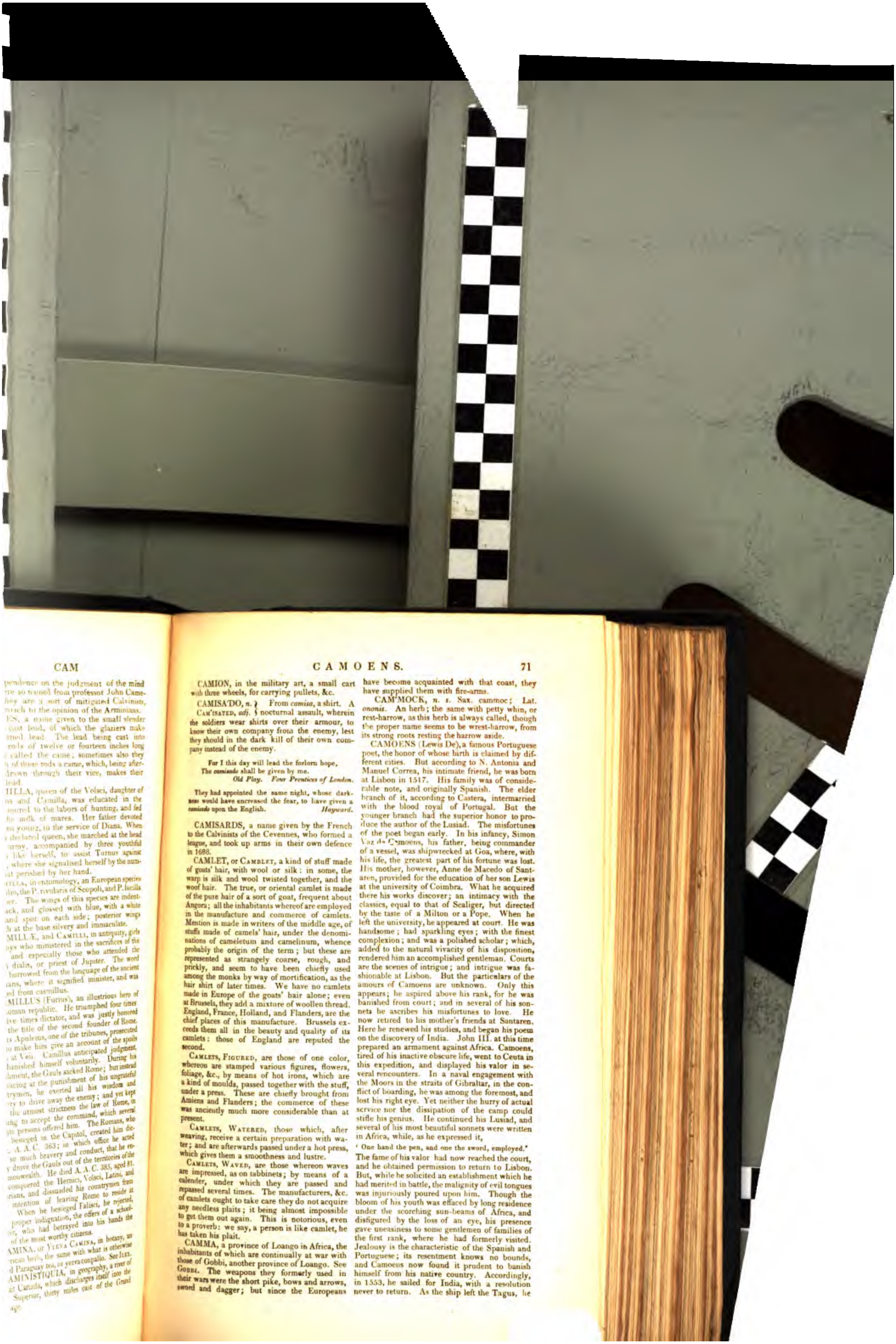
CAMILLA, in entomology, an European species of papilio, the P. rivularis of Scopoli, and P. lucilla of Esper. The wings of this species are indented, black, and glossed with blue, with a white band and spot on each side; posterior wings beneath at the base silvery and immaculate.

CAMILLÆ, and **CAMILLI**, in antiquity, girls and boys who ministered in the sacrifices of the gods; and especially those who attended the flamen dialis, or priest of Jupiter. The word seems borrowed from the language of the ancient Etrurians, where it signified minister, and was changed from casmillus.

CAMILLUS (Furius), an illustrious hero of the Roman republic. He triumphed four times was five times dictator, and was justly honored with the title of the second founder of Rome. Lucius Apuleius, one of the tribunes, prosecuted him to make him give an account of the spoils taken at Veii. Camillus anticipated judgment, and banished himself voluntarily. During his banishment, the Gauls sacked Rome; but instead of rejoicing at the punishment of his ungrateful countrymen, he exerted all his wisdom and bravery to drive away the enemy; and yet kept with the utmost strictness the law of Rome, in refusing to accept the command, which several private persons offered him. The Romans, who were besieged in the Capitol, created him dictator, A. A. C. 363; in which office he acted with so much bravery and conduct, that he entirely drove the Gauls out of the territories of the commonwealth. He died A. A. C. 385, aged 81. He conquered the Hernici, Volsci, Latini, and Etrurians, and dissuaded his countrymen from their intention of leaving Rome to reside at Veii. When he besieged Falisci, he rejected, with proper indignation, the offers of a schoolmaster, who had betrayed into his hands the sons of the most worthy citizens.

CAMINA, or **YERVA CAMINA**, in botany, an American herb, the same with what is otherwise called Paraguay tea, or yerva conpallo. See ILEX.

CAMINISTIQUIA, in geography, a river of Upper Canada, which discharges itself into the lake Superior, thirty miles east of the Grand Portage.



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CAMION, in the military art, a small cart with three wheels, for carrying pullets, &c.

CAMISA'DO, *n.* } From *camisa*, a shirt. A
Cam'isated, *adj.* } nocturnal assault, wherein the soldiers wear shirts over their armour, to know their own company from the enemy, lest they should in the dark kill of their own company instead of the enemy.

> For I this day will lead the forlorn hope,
> The *camisado* shall be given by me.
> *Old Play. Four Prentices of London.*

> They had appointed the same night, whose darkness would have encreased the fear, to have given a *camisado* upon the English. *Hayward.*

CAMISARDS, a name given by the French to the Calvinists of the Cevennes, who formed a league, and took up arms in their own defence in 1688.

CAMLET, or Camblet, a kind of stuff made of goats' hair, with wool or silk: in some, the warp is silk and wool twisted together, and the woof hair. The true, or oriental camlet is made of the pure hair of a sort of goat, frequent about Angora; all the inhabitants whereof are employed in the manufacture and commerce of camlets. Mention is made in writers of the middle age, of stuffs made of camels' hair, under the denominations of cameletum and camelinum, whence probably the origin of the term; but these are represented as strangely coarse, rough, and prickly, and seem to have been chiefly used among the monks by way of mortification, as the hair shirt of later times. We have no camlets made in Europe of the goats' hair alone; even at Brussels, they add a mixture of woollen thread. England, France, Holland, and Flanders, are the chief places of this manufacture. Brussels exceeds them all in the beauty and quality of its camlets: those of England are reputed the second.

Camlets, Figured, are those of one color, whereon are stamped various figures, flowers, foliage, &c., by means of hot irons, which are a kind of moulds, passed together with the stuff, under a press. These are chiefly brought from Amiens and Flanders; the commerce of these was anciently much more considerable than at present.

Camlets, Watered, those which, after weaving, receive a certain preparation with water; and are afterwards passed under a hot press, which gives them a smoothness and lustre.

Camlets, Waved, are those whereon waves are impressed, as on tabbinets; by means of a calender, under which they are passed and repassed several times. The manufacturers, &c. of camlets ought to take care they do not acquire any needless plaits; it being almost impossible to get them out again. This is notorious, even to a proverb: we say, a person is like camlet, he has taken his plait.

CAMMA, a province of Loango in Africa, the inhabitants of which are continually at war with those of Gobbi, another province of Loango. See Gobbi. The weapons they formerly used in their wars were the short pike, bows and arrows, sword and dagger; but since the Europeans have become acquainted with that coast, they have supplied them with fire-arms.

CAM'MOCK, *n. s.* Sax. cammoc; Lat. *ononis*. An herb; the same with petty whin, or rest-harrow, as this herb is always called, though the proper name seems to be wrest-harrow, from its strong roots resting the harrow aside.

CAMOENS (Lewis De), a famous Portuguese poet, the honor of whose birth is claimed by different cities. But according to N. Antonia and Manuel Correa, his intimate friend, he was born at Lisbon in 1517. His family was of considerable note, and originally Spanish. The elder branch of it, according to Castera, intermarried with the blood royal of Portugal. But the younger branch had the superior honor to produce the author of the Lusiad. The misfortunes of the poet began early. In his infancy, Simon Vaz de Camoens, his father, being commander of a vessel, was shipwrecked at Goa, where, with his life, the greatest part of his fortune was lost. His mother, however, Anne de Macedo of Santaren, provided for the education of her son Lewis at the university of Coimbra. What he acquired there his works discover; an intimacy with the classics, equal to that of Scaliger, but directed by the taste of a Milton or a Pope. When he left the university, he appeared at court. He was handsome; had sparkling eyes; with the finest complexion; and was a polished scholar; which, added to the natural vivacity of his disposition, rendered him an accomplished gentleman. Courts are the scenes of intrigue; and intrigue was fashionable at Lisbon. But the particulars of the amours of Camoens are unknown. Only this appears; he aspired above his rank, for he was banished from court; and in several of his sonnets he ascribes his misfortunes to love. He now retired to his mother's friends at Santaren. Here he renewed his studies, and began his poem on the discovery of India. John III. at this time prepared an armament against Africa. Camoens, tired of his inactive obscure life, went to Ceuta in this expedition, and displayed his valor in several rencounters. In a naval engagement with the Moors in the straits of Gibraltar, in the conflict of boarding, he was among the foremost, and lost his right eye. Yet neither the hurry of actual service nor the dissipation of the camp could stifle his genius. He continued his Lusiad, and several of his most beautiful sonnets were written in Africa, while, as he expressed it,

> 'One hand the pen, and one the sword, employed.'

The fame of his valor had now reached the court, and he obtained permission to return to Lisbon. But, while he solicited an establishment which he had merited in battle, the malignity of evil tongues was injuriously poured upon him. Though the bloom of his youth was effaced by long residence under the scorching sun-beams of Africa, and disfigured by the loss of an eye, his presence gave uneasiness to some gentlemen of families of the first rank, where he had formerly visited. Jealousy is the characteristic of the Spanish and Portuguese; its resentment knows no bounds, and Camoens now found it prudent to banish himself from his native country. Accordingly, in 1553, he sailed for India, with a resolution never to return. As the ship left the Tagus, he exclaimed in the words of the sepulchral monument of Scipio Africanus, Ingrata patria, non possedebis ossa mea! 'Ungrateful country, thou shalt not possess my bones!' But he knew not what evils in the East would awake the remembrance of his native fields. When Camoens arrived in India, a fleet was ready to sail to revenge the king of Cochin on the king of Pimenta. Without any rest on shore after his long voyage, he joined this armament, and in the conquest of the Alagada islands displayed his usual bravery. In 1554 he attended Vasconcello in an expedition to the Red Sea. Here, says Faria, as Camoens had no use for his sword, he employed his pen. Nor was his activity confined to the fleet or camp. He visited Mount Felix, and the adjacent inhospitable regions of Africa, which he so strongly pictures in the Lusiad, and in one of his little pieces, where he laments the absence of his mistress. When he returned to Goa, he enjoyed a tranquillity which enabled him to bestow his attention on his Epic. But this serenity was interrupted, perhaps by his own imprudence. He wrote some satires which gave offence; and, by order of the viceroy, Francisco Barreto, he was banished to China. The accomplishments of Camoens soon found him friends, even under the disgrace of banishment. He was appointed commissary of the defunct in the island of Macao. Here he continued his Lusiad; and here also, after five years residence, he acquired a fortune equal to his wishes. Don Constantine de Braganza was now viceroy of India; and Camoens, desirous to return to Goa, resigned his charge. In a ship, freighted by himself, he set sail; but was shipwrecked in the gulf near the mouth of the river Mehon on the coast of China. All he had acquired was lost; as he tells us in the seventh Lusiad:

> 'Now blest with all the wealth fond hope could
> crave,
> Soon I beheld that wealth beneath the wave
> For ever lost;——
> My life like Judah's heaven-doom'd king of yore,
> By miracle prolong'd.'——

His poems, which he held in one hand, while he cut the waves with the other, were all that he possessed, when he stood friendless on the unknown shore. But the natives gave him a most humane reception; which he has immortalised in that beautiful prophetic song in the tenth Lusiad. On the banks of the Mehon, he wrote his beautiful paraphrase of the psalm, where the Jews, in the finest strain of poetry, are represented as hanging their harps on the willows by the rivers of Babylon, and weeping their exile from their native country. Here Camoens continued some time, till an opportunity offered to carry him to Goa. When he arrived at that city, Don Constantine de Braganza, the viceroy, admitted him into intimate friendship, and Camoens was happy till count Rodondo assumed the government. But now, those who had formerly procured his banishment, exerted all their arts against him. Rodondo, when he entered on office, pretended to be the friend of Camoens, yet, he soon after suffered him to be thrown into the common prison. Camoens, however, in a public trial, fully refuted every accusation of his conduct while commissary at Macao, and his enemies were loaded with ignominy. But Camoens had some creditors, who detained him in prison a considerable time, till the gentlemen of Goa, ashamed that a man of his singular merit should experience such treatment among them, set him at liberty. He again assumed the profession of arms, and received the allowance of a gentleman volunteer, a character at this time common in Portuguese India. Soon after, Pedro Barreto, who was appointed governor of the fort at Sofala, allured the poet by high promises to attend him thither. Though the only motive of Barreto was to retain the conversation of Camoens at his table, it was his least care to render the life of his guest agreeable. Chagrined with his treatment, and a considerable time having elapsed in vain dependence upon Barreto, Camoens resolved to return to his native country. A ship, on the homeward voyage, at this time touched at Sofala, and several gentlemen who were on board were desirous that Camoens should accompany them. But to prevent this, the governor ungenerously charged him with a debt for board. Anthony de Cabra however, and Hector de Silveira, paid the demand; and 'Camoens,' says Faria, 'and the honor of Barreto were sold together.' After an absence of sixteen years, Camoens, in 1569, returned to Lisbon, unhappy even in his arrival, for the pestilence then raged in that city, and prevented his publication for three years. At last, in 1572, he printed his Lusiad, which, in the opening of the first book, in a most elegant turn of compliment, he addressed to king Sebastian, then in his eighteenth year. The king, says the French translator, was so pleased with his merit, that he gave the author a pension of 4000 reals, on condition that he should reside at court. But this salary, says the same writer, was withdrawn by cardinal Henry, who succeeded to the crown of Portugal, lost by Sebastian at the battle of Alcazar. Though Henry was the great patron of one species of literature, yet the author of the Lusiad was utterly neglected by him, and under his inglorious reign, died in all the misery of poverty. By some, it is said, he died in an almshouse. It appears, however, that he had not even the certainty of subsistence which these houses provide. He had a black servant, who had grown old with him, who had long experienced his master's humanity. This grateful Indian, a native of Java, who, according to some writers, saved his master's life in the shipwreck, begged in the streets of Lisbon, for the only man in Portugal on whom God had bestowed those talents, which tend to elevate the spirit of a degenerate age. To the eye of a careful observer, the fate of Camoens throws great light on that of his country, and will appear strictly connected with it. The same ignorance, the same despicable spirit, which suffered Camoens to depend on alms, sunk the kingdom of Portugal into the most abject vassalage ever experienced by a conquered nation. While the grandees were blind to the ruin which impended over them, Camoens beheld it with a pungency of grief which hastened his exit. In one of his letters he has these remarkable words: 'Em fim accaberey à vida,'

&c. 'I am ending the course of my life; the world will witness how I have loved my country. I have returned, not only to die in her bosom, but to die with her.' In this unhappy situation, in 1579, in his sixty-second year, the year after the fatal defeat of Don Sebastian, died Lewis de Camoens, the greatest literary genius ever produced in Portugal; a man equal in martial courage and honor to her greatest heroes. And he was buried in a manner suitable to the poverty in which he died. The Lusiad has been translated once into Latin, twice into Italian, once into French, four times into Spanish, and once into English, by Mr. Mickle. Some of his minor poems have been translated into English, in beautiful, if not very faithful, language, by lord Strangford.

CAM'OMILE, *n. s.* A flower. See ANTHEMIS.

CAMORTA, one of the Nicobar isles, in the Bay of Bengal, on which the Danes had a settlement during the last century. It is about twenty-nine miles in length from north to south, and five miles broad. On the south-east coast is a good harbour. It is covered in parts with the poon tree, used for masts in India, and has even fruitful spots, but is thinly peopled. See NICOBAR.

CA'MOS, or
CA'MOYS, or
CA'MOUS, *adj.*
CA'MOUSED, *adj.*
CA'MOUSLY.

Fr. *camuser*; Lat. *simus*; Ital. *camuso*. Flat nosed; to bend; to break; to flatten the nose; from *καμπτω*, I bend. Dr. Johnson says, that camow-nosed is hook-nosed.

Round was his face, and *camuse* was his nose;
As pilled as an ape was his skull.
Chaucer's Canterbury Tales.

Many Spaniards, of the race of Barbary Moors, though after frequent commixture, have not worn out the *camous* nose unto this day.
Browne's Vulgar Errours.

CAMOUFLET, in military affairs, a kind of stinking combustible blown out of paper cases into the miners' faces, when they are at work in the galleries of the countermines. They are to be ranked at present, not only among the disused, but we hope among the never to be renewed resources of a weak garrison.

CAMP', *v.* & *n.*
CAMPAIGN',
CAMP'-FIGHT,
CAMP'-MASTER.

Sax. *camp*, corresponds with Lat. *castrum*, from Goth. *kiamp*, a soldier; Swed. *kamp*; Sax. *camp*; Arm. *kimp*; Welsh, *camp*; Irish, *campa*; Ital. *campo*; Fr. *camp*. A contest, or place of armies; a military station in the field. The root of the Goth. word is *kapp*, a contest; from which we have our word *cope*, to contend. Its general acceptation is the place and order of tents for soldiers in the field. It has also a signification that has nothing to do with the pomp and circumstance of glorious war; it often means no more than a field, plain, or open country. Campaign is equally applied to an extensive level country, and to the season that armies keep the field.

From *camp* to *camp*, through the foul womb of night,
The hum of either army stilly sounds. *Shakspeare.*
I, his despiteful Juno, sent him forth,
From courtly friends, with *camping* foes to live. *Id.*

For their trial by *camp-fight*, the accuser was, with the peril of his own body, to prove the accused guilty; and, by offering him his glove or gantlet, to challenge him to this trial. *Hakewell.*

This might have hastened his march, which would have made a fair conclusion of the *campaign.*
Clarendon.

In countries thinly inhabited, and especially in vast *campanias*, there are few cities, besides what grow by the residence of kings. *Temple.*

Command the children of Israel, that they put out of the *camp* every leper, and overy one that hath an issue, and whosoever is defiled by the dead: Both male and female shall ye put out, without the *camp* shall ye put them; that they defile not their *camps* in the midst whereof I dwell. *Numb.* v. 2—4.

What hindered me from going into Spain? That was my province, where I should have had the less dreaded Asdrubal, not Hannibal, to deal with. But hearing, as I passed along the coast of Gaul, of this enemy's march, I landed my troops, sent the horse forward, and pitched my *camp* upon the Rhone. A part of my cavalry encountered, and defeated that of the enemy. *Hooke's Speech of Scipio.*

I served thee fifteen hard *campaigns*,
And pitched thy standard in these foreign fields;
By me thy greatness grew; thy years grew with it—
But thy ingratitude out-grew them both. *Dryden.*

Those grateful groves that shade the plain,
Where Tiber rolls majestic to the main,
And fattens, as he runs, the fair *campaign*. *Garth.*

An Iliad rising out of one *campaign*. *Addison.*
Next, to secure our *camp* and naval powers,
Raise an embattled wall with lofty towers. *Pope.*

And perfect victor had the duke remained,
But that Prince Hubert privately retired,
And long before the *camp* at Brescia gained,
Whence he returned with double fury fired. *Gay.*

On Addison's sweet lays, Attention waits,
And Silence guards the place while he repeats;
His muse alike on every subject charms,
Whether she paints the god of love or arms;
In him pathetic Ovid sings again,
And Homer's Iliad shines in his *campaign*. *Id.*

'Not far from hence,' said he, 'a chosen few
Lie *camped*, my trusty followers in the field. *Id.*

On the banks of the Niester, the prudent Athanaric, more attentive to his own than to the general safety, had fixed the *camp* of the Visigoths, with the firm resolution of opposing the victorious barbarians, whom he thought it less advisible to provoke.
Gibbon.

What though I saw with steady view
Bath spread of nymphs her proud array;
And faced, with anguish well concealed,
The shafts that frequent round me flew;
Think not that from the fatal field
I bore a heart entire away!
Nor yet, believe me, thus retired,
Hill, grove, or lawn, my plaint resound;
A secret pleasure soothes my pain,
And with heroic ardour fired
I cherish each illustrious wound
In memory of that bright campaign. *Dr. T. Percy.*

And for his tongue, the *camp* is full of licence,
And the sharp stinging of a lively rogue
Is to my mind far preferable to
The gross, dull, heavy, gloomy, execrations
Of a mere famished, sullen, grumbling slave.
Byron Deformed Transformed.

CAMP is also used by the Siamese, and some other nations in the East Indies, as the name of the quarters which they assign to foreigners who come to trade. In these every nation forms a kind of town, where they carry on their trade, not only keeping all their warehouses and shops, but also living in these camps with their whole families. The Europeans, however, may live either in the cities or suburbs, as they please.

CAMPS, in respect to their location, ought to be planted near water, in a country of forage, where the soldiers may find wood for dressing their victuals; have a free communication with garrisons, and with a country from whence it may be supplied with provisions; and, if possible, be situated on a rising ground, in a dry gravelly soil. The advantages of the ground ought also to be considered, as marshes, woods, rivers, and enclosures; and if the camp be near the enemy, with no river or marsh to cover it, it ought to be intrenched. An army generally encamps fronting the enemy: in two lines, running parallel, about 500 yards distance; the horse and dragoons on the wings, and the foot in the centre: sometimes a body of two, three, or four brigades is encamped behind the two lines, and is called the reserve. The artillery and bread waggons are generally encamped in the rear of the two lines. A battalion of foot is allowed eighty or 100 paces for its camp; and thirty or forty for an interval, betwixt one battalion and another. A squadron of horse is allowed thirty for its camp, thirty for an interval, and more if the ground will allow it. Where the grounds are equally dry, those camps are always the most healthful that are pitched on the banks of large rivers: because, in the hot season, situations of this kind have a stream of fresh air from the water, serving to carry off noxious exhalations. On the other hand, next to marshes, the worst encampments are on low grounds close beset with trees: for then the air is not only moist and hurtful, but, by stagnating, becomes more susceptible of corruption. However, let the situation of camps be ever so good, they are frequently rendered infectious by putrid effluvia of various kinds, which make it necessary to leave the ground with all the filth of the camp behind. This should be frequently done, if consistent with the military operations. It may also be a proper caution to order the privy-pits to be made at a distance, either in the front or the rear, as the then stationary winds may best carry off the effluvia from the camp. It will also be necessary to change the straw frequently, as being not only apt to rot, but to retain the infectious steams of the sick. But if fresh straw cannot be procured, more care must be taken in airing the tents, as well as the old straw. Several modern medical writers have considered the diseases of camps, among whom Drs. Pringle and Monro may be mentioned as most celebrated.

CAMPS, ANCIENT FORMS OF. The disposition of the Hebrew encampment was at first laid out by God himself. Their camp was of a quadrangular form, surrounded with an enclosure of the height of ten hand-breadths. It made a square of twelve miles in compass about the tabernacle; and within this was the Levites' camp. The Greeks had also their camps, fortified with gates and ditches. The Lacedæmonians made their camp of a round figure, looking upon that as the most perfect and defensive of any form; though they doubtless dispensed with it when circumstances required. In the other Grecian camps, the most valiant of the soldiers were placed at the extremities, the rest in the middle. Thus Homer tells us that Achilles and Ajax were posted at the ends of the camp before Troy, as bulwarks on each side of the other princes. The figure of the Roman camp was a square divided into two principal parts: in the upper parts were the general's pavilion, or prætorium, and the tent of the chief officers; in the lower, those of inferior degree. On one side of the prætorium stood the quæstorium, or apartment of the treasurer; and near this the forum, both for a market-place and the assembling of councils. On the other side of the prætorium were lodged the legati; and below it the tribunes had their quarters, opposite to their respective legions. Aside from the tribunes were the præfecti of the foreign troops, over against their respective wings; and behind these were the lodgments of the evocati; then those of the extraordinarii and ablecti equites, which concluded the higher part of the camp. Between the two partitions was a spot of ground called principia, for the altars and images of the gods, and probably also for the chief ensigns. The middle of the lower partition was assigned to the Roman horse; next to them were quartered the triarii; then the principes, and close by them the hastati; afterwards the foreign horse, and lastly the foreign foot. They fortified their camp with a ditch and parapet, which they termed fossa and vallum; in the latter some distinguish two parts, viz. the agger or earth, and the sudes or wooden stakes driven in to secure it. The camps were sometimes surrounded by walls made of hewn stone; and the tents themselves formed of the same matter.

In the front of a Turkish camp are quartered the janissaries and other foot, whose tents encompass their aga: in the rear are the quarters of the spahis and other horsemen. The body of the camp is possessed by the stately tents or pavilions of the vizier, reis effendi, kahija, the tefterdar bashaw, and kapislar kahiasee. In the middle of these tents is a spacious field, wherein are erected a building for the divan, and a hafna or treasury. When the ground is marked out for a camp, all wait for the pitching of the tent lailac, the place where the courts of justice are held; it being the disposition of this, that regulates all the rest. The Arabs still live in camps, as the ancient Scenites did. The camp of the Assyne Emir, or king of the country about Tadmor, is described by a traveller who viewed it, as spread over a very large plain, and possessing so vast a space, that, though he had the advantage of a rising ground, he could not see the utmost extent of it. The king's tent was near the middle; scarce distinguishable from the rest, except that it was bigger, being made, like the others, of a sort of hair-cloth.

The CAMPAGNA DI ROMA, or Territory of Rome, is bounded on the north by Il Patrimonio di St. Pietro and Sabina, on the north-east and east by the kingdom of Naples, and on the south

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and west by the Tuscan Sea. It is the most important of the States of the Church, having Rome for its capital, and comprehending the greater part of ancient Latium. It is from fifty to seventy miles long, and from forty to sixty broad. Its formation is entirely volcanic. Here are now many waste and unhealthy tracts, thinly peopled. The ruins of temples and tombs are the only conspicuous objects. The Pontine marshes cover a large district in the south-east, and fill the atmosphere with the most noxious vapors. But a good road has lately been cut through them. The soil is generally fertile, and wants only an intelligent and healthy population to render it productive. The towns of note, besides Rome, are Velletri, Frascati, Palestrina, Terracina, Tivoli, Ardea, Veroli, Albano, Nettuno, Ostia, Castel-Gandolfo, and Marino. The chief river is the Tiber, which separates this province from St. Peter's Patrimony.

CAMPAN, a town of France, in the department of the Upper Pyrenees, on the left bank of the Adour. Population 4200. This is one of the most romantic parts of France; the hills abound in red, white, and gray marble. The inhabitants rear cattle, and travel for employment into Spain. Two miles and a half south of Bagneres.

CAMPANELLA (Thomas), a celebrated Italian philosopher, born at Stilo, in Calabria, in 1568. He distinguished himself very early, for at the age of thirteen he was a perfect master of the ancient orators and poets. His peculiar inclination was to philosophy, to which he at last confined his whole time and study. At the age of twenty-two he formed a new system of philosophy, which raised him many enemies among the partizans of Aristotle. This induced him to go to Rome, whence he proceeded to Florence and Padua. In 1598 he returned to Calabria, where he was seized and carried to Naples, put seven times to the rack, and finally imprisoned for twenty-four years. During his confinement, he wrote his famous work, entitled Atheismus Triumphatus. Being at length set at liberty, he went to Paris, where he was graciously received by Louis XIII. and cardinal Richelieu; the latter procured him a pension of 2000 livres. Campanella passed the remainder of his days in a monastery at Paris, and died in 1639.

CAMPANIA. See Campagna di Roma.

CAMPAN'IFORM, *adj.* Lat. *campana*, a bell, and *forma*. A term used of flowers, which are in the shape of a bell.

CAMPANILE, a bell tower, a detached tower in some parts of Italy, erected for the purpose of containing bells. The narrowness of the base, combined with the great elevation of these towers, has occasioned several of them to settle, as it is called, and to deviate considerably from their original perpendicular.

The campanile of Pisa, called Torre Pendente, or the hanging tower, is the most remarkable of these. Its form is that of a cylinder surrounded with eight stories of columns placed over each other; the last story, which forms the belfry, retiring a little from the general line of elevation. All the columns are of marble: from each column springs two arches, and between the columns and the circular wall of the tower is an open gallery. The height to the platform is 150 feet, and the building inclines nearly thirteen feet from the perpendicular.

CAMPANULA, the bell-flower, a genus of the monogynia order, in the pentandria class of plants; natural order, twenty-ninth, campanaceæ: cor. campanulated, with its fundus closed up by the valves that support the stamina: stig. trifid: cap. inferior, or below the receptacle of the flower, opening and emitting the seeds by lateral pores. Of this genus there are no fewer than eighty-five species, but the following are the most worthy of attention:—

1. C. Canariensis, with an orach leaf and tuberous root, is a native of the Canary Islands. The flowers are produced from the joints of the stalk, which are the perfect bell shape, and hang downward, they are of a flame color, marked with stripes of a brownish red; the flower is divided into five parts; at the bottom of each is seated a nectarium, covered with a white transparent skin, much resembling those of the crown imperial, but smaller. The flowers begin to open in the beginning of October, and there is often a succession of them till March. The stalks decay to the root in June, and new ones spring up in August.

2. C. decurrens, the peach-leaved bell-flower, is a native of the northern parts of Europe; of this there are some with white, and some with blue flowers, and some with double flowers of both colors. These last have of late been propagated in such abundance as to have almost banished from the gardens those with single flowers.

3. C. hybrida, or common Venus's looking-glass, seldom rises more than six inches, with a stalk branching from the bottom upwards. This was formerly cultivated in the gardens; but since the speculum has been introduced, whose flowers are very similar, it has almost supplanted this; for the other is a much taller plant, and the flowers larger.

4. C. latifolia, or great bell-flower. The flowers come out singly upon short foot-stalks; their colors are blue, purple and white.

5. C. medium, the Canterbury bell-flower, is a biennial plant, perishing soon after it has ripened its seeds. It grows naturally in the woods of Italy and Austria; but is cultivated in the British gardens for the beauty of its flowers, which are blue, purple, white, and striped, with double flowers of all the colors. From the setting on of the leaves proceed the foot-stalks of the flowers; those which are on the lower part of the stalk and branches diminishing gradually in their length upward, and thereby forming a sort of pyramid. The flowers of this kind are very large, and make a fine appearance. The seeds ripen in September, and the plants decay soon after.

6. C. ranunculus, the rampion, the roundish fleshy roots of which are eatable, and much cultivated in France for sallads; it was formerly cultivated in the English gardens for the same purpose, but is now generally neglected. It is a native of Britain; but the roots of the wild sort never grow to half the size of those which are cultivated.

7. C. speculum with yellow eye-bright leaves. From the wings of the leaves come out the flowers sitting close to the stalks, which are of a beautiful purple, inclining to a violet color. In the evening, they contract and fold into a pentagonal figure; from whence it is by some called viola pentagonia, or five-cornered violet.

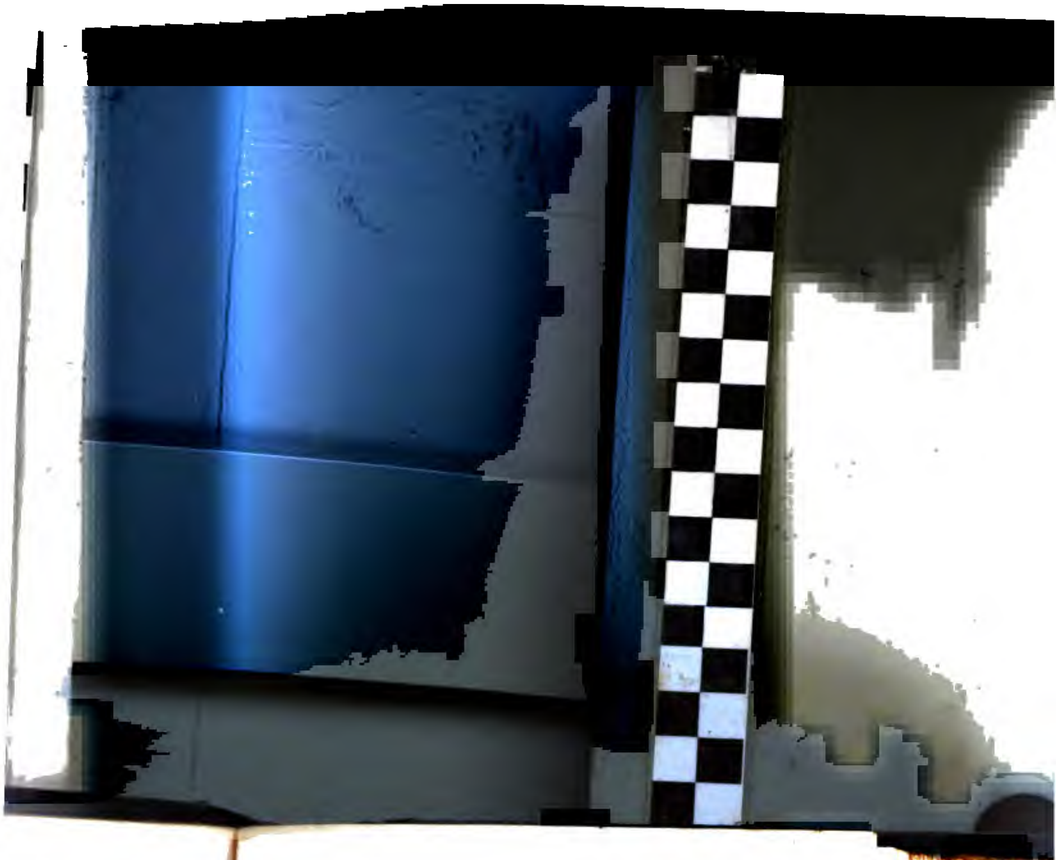
8. C. trachelium, with nettle leaves, and a perennial root. Towards the upper part of the stalks, the flowers come out alternately upon short trifid foot-stalks having hairy empalements. The colors of the flowers are a deep and pale blue and white, with double flowers of the same; only the double flowered kind merits a place in gardens.

The first species is propagated by parting the roots, which must be done with caution: for if they are broken or wounded, the milky juice will flow plentifully; and if planted before the wounds are skinned over, they rot: when any of them are broken, they should be laid in the green-house a few days to heal. They must not be too often parted, if they are expected to flower well; for they are thus weakened. The best time for transplanting and parting them is in July, soon after the stalks are decayed. They succeed best in light sandy loam, mixed with a fourth part of screened lime-rubbish: when the roots are first planted, the pots should be placed in the shade, and unless the season is very dry they should not be watered. About mid-August the roots will begin to put out fibres; at which time, if the pots are placed under a hot-bed frame, opened every day to enjoy the free air, it will greatly forward them for flowering, and increase their strength. The plants thus managed, by the middle of September will have grown so tall as not to be kept any longer under the glass frame; they must, therefore, be removed into a dry airy glass case, where they may enjoy the air in free mild weather, but screened from the cold. The second, fourth, fifth, and eighth species are so easily propagated by parting the roots, or by seeds, that no particular directions for the culture need be given. The third and seventh species are easily propagated by seeds, which they produce in plenty. If the seeds are sown in autumn, the plants will flower early in the spring; but, if sown in spring, they will not flower till mid-June; and, if a third sowing is performed about the middle of May, the plants will flower in August; but good seeds must not be expected from these. The ranunculus, which is cultivated for its esculent roots, may be propagated by seeds, which are to be sown in a shady border, and the ground to be well hoed. The roots ought to be taken up, in winter, as they are wanted. They will continue good till April, at which time they send out their stalks, when the roots become hard.

CAMPASPE, a most beautiful concubine of Alexander the Great, who ordered Apelles to draw her picture naked. But the painter, during the operation, falling in love with her, the conqueror of the world conquered his own passion so far, as to give her up to him.

CAMPBELL (George), D. D. the son of the Rev. C. Campbell, was born in 1719 at Aberdeen, where he was educated. He was at first articled to a writer of the signet, but turned his attention to divinity, and obtained in 1748 the church of Banchory Ternan. In 1756 he became one of the ministers of Aberdeen; and in 1759 was chosen principal of Marischal College. He now began his celebrated Essay on Miracles, in answer to Hume, and on the publication of it received his diploma from King's College, Aberdeen. In 1771 he was elected divinity professor. This professorship he resigned some years before his death, and the king settled on him a pension of £300 a year. He died in 1796. His other principal works are: The Philosophy of Rhetoric, in 2 vols. 8vo. 1776; A Sermon, on Allegiance, preached on the king's fast day, 1777, 4to.; An Address to the People of Scotland, on the Alarms raised by what is called the Popish Bill, 8vo. 1780; A Translation of the Gospels, with Preliminary Dissertations, 2 vols. 8vo., 1793. This was his last and greatest work; the fruit of copious erudition and unwearied application, for about thirty years; and will lead the attentive reader to regret that the other books of the New Testament had not been elucidated by the same judicious author.

CAMPBELL (John), second duke of Argyle and Greenwich, was born October 10th, 1680. At the age of fifteen he had made a considerable progress in classical learning. His father then perceived and encouraged his military disposition, and introduced him to king William, who in 1694 gave him the command of a regiment. In this situation he remained till the death of his father in 1703; when, becoming duke of Argyle, he was sworn of queen Anne's privy council, made captain of the Scotch horse guards, and appointed one of the extraordinary lords of session. In 1704 the queen, reviving the Scottish order of the thistle, installed the duke one of the knights, and soon after appointed him high commissioner to the Scotch parliament; where, being of great service in promoting the Union, he was on his return created a peer of England, and in 1710 knight of the garter. He first distinguished himself at the battle of Oudenard; where he commanded as brigadier-general. He was also present under the duke of Marlborough at the siege of Ghent, and took possession of the town. He had a share likewise in the victory of Malplaquet, by dislodging the French from the wood of Sart, and gaining a post of great consequence. Soon after, he was sent to take the command in Spain; and, after the reduction of Port Mahon, returned to England. Having now a seat in the house of lords, he censured the measures of the ministry with such freedom, that he was deprived of all his places: but at the accession of George I. he recovered his influence. At the breaking out of the rebellion in 1715 he was made commander-in-chief in North Britain. In direct opposition to that part of the army he commanded, at the head of all his Campbells was placed Campbell earl of Braidalbin, a nobleman of the same family and kindred. The consequence was, that both sets of Campbells, from family affection, refused to strike a stroke, and retired out of the battle. He arrived in London March 6th, 1716, and was in high favor; but, to the surprise of people of all ranks, he was in a few months divested of all his employments; and



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from this period to 1718 signalised himself in a civil capacity. In the beginning of 1719 he was again admitted into favor, appointed lord steward of the household, and, in April following, created duke of Greenwich. He continued in the administration during the remaining part of that reign; and, after the accession of king George II, till April 1740; when he delivered a speech with which the ministry being highly offended, he was again dismissed. He was soon however restored; but not approving of the measures of the new ministry, gave up all his posts for the last time, and died in privacy, of a paralytic disorder, on the 4th of October, 1743. A noble monument, by Roubilliac, was erected in Westminster Abbey to his memory. The titles of duke and earl of Greenwich, and baron of Chatham, became extinct at his death; but in his other titles he was succeeded by his younger brother Archibald, earl of Ilay.

Campbell (John), an historical, biographical, and political writer, was born at Edinburgh, March 8th, 1708; and was the fourth son of Robert Campbell of Glenlyon, by a Miss Smith of Windsor in Berkshire, a descendant of the poet Waller. At five years of age he was brought from Scotland to Windsor, where he received his education; and was placed as clerk to an attorney. This profession, however, he never followed; but, by a close application to science, qualified himself to appear with great advantage in the literary world. In 1736 he gave to the public, in 2 vols. folio, The Military History of Prince Eugene and the Duke of Marlborough, enriched with maps, plans, and cuts. The reputation he acquired occasioned him soon after to be solicited to take a part in the Ancient Universal History. Whilst employed in this work, Mr. Campbell found leisure to undertake several other pieces. In 1739 he published the Travels and Adventures of Edward Brown, Esq., 8vo.; and Memoirs of the Bashaw Duke de Ripperda, 8vo.; reprinted, with improvements, in 1740. These were followed, in 1741, by the Concise History of Spanish America, 8vo. In 1742 he published A Letter to a Friend in the Country, on the Publication of Thurloe's State Papers; and the first and second vols. of his Lives of the English Admirals, and other eminent British Seamen. The two remaining vols. were completed in 1744; and the whole, not long after, was translated into German. This was the first of Mr. Campbell's works to which he prefixed his name. In 1743 he published Hermippus Redivivus; a second edition of which, much improved and enlarged, came out in 1749. In 1744 he gave to the public, in 2 vols. folio, his Voyages and Travels, on Dr. Harris's plan. The time and care employed by Mr. Campbell in this important undertaking, did not prevent his engaging in another great work, the Biographia Britannica, which began to be published in weekly numbers in 1745, and extended to 7 vols. folio; but his articles were only in the first 4 vols. When the late Mr. Dodsley formed the design of the Preceptor, which appeared in 1748, Mr. Campbell was engaged to assist in it. The parts written by him were the Introduction to Chronology, and the Discourse on Trade and Commerce. In 1750 he published the first separate edition of his Present State of Europe; a work which had been originally begun in 1746 in the Museum, a valuable periodical work printed for Dodsley. The next great undertaking which called for the exertion of his abilities and learning, was The Modern Universal History. This extensive work was published, in detached parts, till it amounted to 16 vols. folio; and a second edition of it, in 8vo., began to appear in 1759. The parts written by Mr. Campbell were, the histories of the Portuguese, Dutch, Spanish, French, Swedish, Danish, and Ostend Settlements in the East Indies; and the Histories of the kingdoms of Spain, Portugal, Algarve, and Navarre; and of France, from Clovis to 1656. The degree of LL. D. was conferred upon him June 18th, 1754, by the university of Glasgow. His favorite work was, A Political Survey of Great Britain, 2 vols. 4to., published a short time before his death; in which the extent of his knowledge, and his patriotic spirit, are equally conspicuous. He was, during the latter part of his life, agent for the province of Georgia in North America; and died in 1775, aged sixty-seven.

Campbell, a county of Virginia, bounded on the north by the Fluvanna, which divides it from Amherst; east by Charlotte and Prince Edward counties; north-east by Buckingham; west by Franklin and Bedford counties; and south by Pittsylvania. It is forty-five miles in length, and thirty in breadth.

CAMPBELTOWN, a royal burgh and post town in the parish of the same name, in the county of Argyle, seated on the lake of Kilkerran, on the eastern shore of the district of Kintyre, of which it is the chief town. It has a good harbour; and is now a very considerable place, though within these sixty years only a petty fishing town. It has in fact been created by the fishery; having been apppointed the place of rendezvous for the busses; and above 300 have been seen in the harbour at once. Its vicinity to the markets of Ireland and the Clyde, are advantages which very few sea-ports enjoy. The harbour is about two miles long and one broad, in the form of a crescent, with from six to ten fathoms water, and excellent anchorage, surrounded by high hills on each side, and an island to shelter the entrance. Two public libraries are also established, and a good school. This town was erected into a royal burgh in 1701, and is governed by a provost, two bailies, a dean of guild, treasurer, and twelve counsellors. It joins with Ayr, Irvine, Inverary, and Rothsay, in sending a member to parliament. It lies thirty miles west of Ayr, and 176 miles west by south from Edinburgh.

CAMPDEN, a market town of Gloucestershire, famous for its stocking manufactures. The church is a fine gothic building, said to be as old as William II. Here is also a grammar school and two charity schools. In the neighbourhood is a silk mill and manufactory. Market on Wednesday. Seven miles east from Evesham, and ninety W.N.W. from London.

CAMPEACHY, a town of Mexico, seated on the east coast of the bay of this name, and defended by a good wall and strong forts: but it is not so rich as formerly; having been once the principal port for the sale of logwood. It was taken by the English in 1596; by the buccaneers in 1650 and 1678; and by the Flibusters of St. Domingo in 1685, who set it on fire and blew up the citadel. It was once a considerable native town, and the Spaniards afterwards found many curious Indian antiquities here. The port is large, but the water shallow. The houses are of stone, and generally well built. Population about 6000. Its principal trade is in wax and cotton cloth, which is manufactured here.

CAMPEACHY WOOD, in botany. See HÆMATOXYLUM.

CAMPEN, a fortified town of the Netherlands, has a citadel and harbour; but the latter is almost choked up with sand. It was taken by the Dutch in 1578, and by the French in 1672; they abandoned it in 1673. It is seated near the mouth of the river Yssel, on the Zuider Zee. The most remarkable edifices are the two churches, the town-house, and the wooden bridge across the Yssel, which is 720 feet long, and 20 broad. The country around can readily be laid under water. Population 6200. Thirteen miles north of Arnheim, and forty-five north-east of Amsterdam.

CAMPES'TRAL, *adj.* Latin, *campestris*; growing in fields.

> The mountain beech is the whitest; but the *campestral*, or wild beech, is blacker and more durable.
> *Mortimer.*

CAMPESTRE, in antiquity, a cover for the body, worn by the Roman soldiers in their field exercises; being girt under the navel, and hanging down to the knees. The name is formed from campus, the field, where they performed these exercises.

CAMP FIGHT, among old law writers, is spelt KAMP FIGHT. We therefore refer the reader, for an account of this obsolete mode of legal duelling to that article.

CAM'PHIRE, *v.* & *n.*
CAM'PHIRE-TREE,
CAM'PHORATE, *n.*
CAM'PHORATED.

Καφυρα; Ar. Heb. Per. *kafoor*; Sans. *kupoor*; Fr. *camphre*; Lat. *camphora* A white resinous gum.

> There are two sorts of this tree; one is a native of the isle of Borneo, from which the best *camphire* is taken, which is supposed to be a natural exudation from the tree, produced in such places where the bark of the tree has been wounded or cut. The other sort is a native of Japan, which Dr. Kempfer describes to be a kind of bay, bearing black or purple berries, from whence the inhabitants prepare their *camphire*, by making a simple decoction of the root and wood of this tree, cut into small pieces; but this sort of *camphire* is in value eighty or an hundred times less than the true Bornean *camphire*. *Miller.*
>
> Spirit of wine *camphorated*, is a remedy frequently applied externally in cases of inflammations, &c.
> *Dr. A. Rees.*

CAMPHIRE, CAMPHOR, or CAMPHORA, a solid concrete juice extracted from the wood of the laurus camphora. See LAURUS CAMPHORA.

CAMPHOROSMA, in botany, stinking ground pine, a genus of the tetrandria order and monogynia class of plants: natural order twelfth, holoraceæ: CAL. is pitcher-shaped and indented, there is no corolla; and the capsule contains a single seed. It is reputed cephalic and nervine; though little used in modern practice. It takes the name from its smell, which bears some resemblance to that of camphor. There are five species. Of these the principal is, C. Monspeliensis, which grows especially about Montpelier It has been produced as a specific for the dropsy and asthma.

CAMPHUYSEN (Dirk Theodore Raphael), an eminent painter, born at Gorcum in 1586. He learned the art from Govertze, but soon far surpassed his master. His subjects were landscapes, mostly small, with ruinous buildings, huts of peasants, or views of villages on the banks of rivers. He generally represented them by moon light. His pencil is remarkably soft; his coloring very transparent, and his expertness in perspective is seen in the proportional distances of his objects. Few of his works are to be met with, and they bring considerable prices.

CAMPIAN (Edmund), an English Jesuit, born in London, of indigent parents, in 1540; and educated at Christ's Hospital, where he had the honor to deliver an oration before queen Mary on her accession to the throne. He was admitted a scholar of St. John's College in Oxford on its foundation, and took the degree of M. A. in 1564. About the same time he was ordained, and became an eloquent Protestant preacher. In 1566, when queen Elizabeth was entertained by the University of Oxford, he spoke an elegant oration before her majesty, and was also respondent in the philosophy act in St. Mary's church. In 1568 he was junior proctor of the University. In 1569 he went over to Ireland, where he wrote a history of that kingdom, and became papist, and being assiduous in persuading others to follow his example, was committed to prison. He soon, however, made his escape, and in 1571 proceeded to Douay in Flanders, where he publicly recanted his former opinions, and was created B. D. He went soon after to Rome, where, in 1573, he was admitted of the Society of Jesus, and was sent by the general to Vienna, where he wrote his tragedy, called Nectar et Ambrosia, which was acted before the emperor with great applause. He went next to Prague, where he resided in the Jesuits' college about six years, and then returned to Rome. From thence, in 1580, he was sent by pope Gregory XIII. with father Parsons, to convert the people of England. They were joyfully received by their friends; but had not been long in England before Campian was apprehended, and conducted in triumph to London. He was imprisoned in the tower; where, says Wood, 'he did undergo many examinations, abuses, wrackings, tortures.' He was finally condemned on the statute 25 Edward III. for high treason; and butchered at Tyburn, with two or three of his fraternity. 'All writers, whether Protestant or Popish, say, that he was a man of admirable parts; an elegant orator, a subtle philosopher and disputant, and an exact preacher, whether in English or Latin, of a sweet disposition, and a well polished man.' His History of Ireland, in two books, was published by Sir James Ware, their riches, and several colonies were planted by them over the islands and maritime provinces of the Mediterranean. The measure of their idolatry and abominations was completed, when God delivered their country into the hands of the Israelites. In St. Athanasius's time, the African, still said they were descended from the Canaanites; and the Punic tongue was almost entirely the same with the Canaanitish and Hebrew languages. The colonies which Cadmus carried into Thebes in Bœotia, and his brother Cilix into Cilicia, came from the stock of Canaan. The isles of Sicily, Sardinia, Malta, Cyprus, Corfu, Majorca and Minorca, Gades and Ebusus, are thought to have been peopled by them. Bochart, in his large work, entitled Canaan, has set this matter in a clear light. Many of the old inhabitants of the north-west of Canaan, however, particularly on the coast of Tyre and Sidon, were not driven out by the children of Israel, whence this tract seems to have retained the name of Canaan long after those other parts of the country, which were better inhabited by the Israelites, had lost the name. The Greeks called this tract, inhabited by the old Canaanites, Phœnicia; the more inland parts, being inhabited partly by Canaanites, and partly by Syrians, Syrophœnicia: and hence the woman, said by St. Matthew (xv. 22.) to be a woman of Canaan, whose daughter Jesus cured, is said by St. Mark (vii. 26.) to be a Syrophœnician by nation, as she was a Greek by religion and language.

CANADA. See America, British, vol. ii. p. 46—49, where is a full account of this interesting colony.

CANAILLE', *n. s.* French. The lowest people; the dregs; the lees; the offscouring of the people: a French term of reproach.

CANAL', Lat. *canalis.* Virgil uses *canalis* for a trough. It literally means the hollow of any thing, like the hollow of a cane. Thus narrow pieces of water in a garden, which are drawn out to any considerable length, are called canals. And the term is now appropriated to any tract or course of water made by art. It is used in its primitive sense, in anatomy, to designate any conduit or passage through which the juices of the body flow.

> But soche a fairenesse of a necke
> Yhad that swete, that bone nor brecke,
> N'as there none seen that missesatte,
> It was white, smothe, streight, and pure flatte,
> Withouten hole or *canel* bone,
> And by seming she had none.
>
> *Chaucer's Boke of the Duchesse.*
>
> The walks and long *canals* reply. *Pope.*
>
> So with strong arm immortal Brindley leads
> His long *canals*, and parts the velvet meads;
> Winding in lucid lines, the watery mass
> Mines the firm rock, or loads the deep morass. *Dar*
>
> The rushing flood from sloping pavements pours,
> And blackens the *canals* with dirty showers. *Gay.*

Canals. See Inland Navigation.

Canal'-coal, *n. s.* A fine kind of coal, dug up in England.

> Even our *canal-coal* nearly equals the foreign jet.
>
> *Woodward.*

CANALES Semicirculares, three semicircular canals placed in the posterior part of the labyrinth of the ear. They open by five orifices into the vestibulum. See Ear and Physiology.

CANALIC'ULATED, *adj.* from Lat. *canaliculatus;* channelled; made like a pipe or gutter.

CANALIS Arteriosus, canaliculus arteriosus; canalis botalii. A blood-vessel peculiar to the fœtus, disappearing after birth; through which the blood passes from the pulmonary artery into the aorta.

Canalis Nasalis, a canal going from the internal canthus of the eye downwards into the nose: it is situated in the superior maxillary bone, and is lined with the pituitary membrane continued from the nose.

Canalis Petitianus, a triangular cavity, naturally containing a moisture, between the two laminæ of the hyaloid membrane of the eye, in the anterior part, formed by the separation of the anterior lamina from the posterior. It is named after its discoverer, M. Petit.

Canalis Venosus, a canal peculiar to the fœtus, disappearing after birth, that conveys the maternal blood from the porta of the liver to the ascending vena cava.

CANANDAQUA, a post town, the capital of Ontario county, seated near the lake, thirty miles from Jerusalem, and 434 N. N. W. of Philadelphia. Courts of sessions and common pleas are held in it, first Tuesday of June and November.

CANANORE, a town and district on the coast of Malabar, once a separate kingdom. The natives are generally Mahommedans; and the country produces pepper, cardamoms, ginger, mirobolans, and tamarinds, in which they drive a considerable trade. The town has a safe harbour. It formerly belonged to the Portuguese, and had a strong fort to guard it; but in 1683 the Dutch, together with the natives, drove them out, and enlarged the fortifications. It was afterwards taken by Tippoo Saib, and finally by the English in 1790. It is under a native sovereign, tributary to the East India Company. Distant fifteen miles north-east of Tellicherry, and 100 W. S. W. of Seringapatam.

CANARA, or Canata, a province of Hindostan, on the coast of Malabar. Here is a pagoda, called Ramtrut, which is visited every year by a great number of pilgrims, and the custom of burning the wives with their husbands is much practised. The lower grounds yield every year two crops of corn or rice; and the higher produce pepper, betel-nuts, sanders wood, iron and steel. The whole province is about 180 miles in length, and from thirty to seventy broad: the climate fine, and the teak wood abundant. The principal towns are Barcelore, Batecola, Carwar, Mangalore, and Onore. It was ceded by Tippoo Saib to the English in 1799.

CANARIA, in ancient geography, one of the Fortunate Islands, a proof that these are what we now call the Canaries. Canaria had its name from abounding with dogs of an enormous size.

Canaria, or the Grand Canary, an island in the Atlantic Ocean, about 180 miles from the coast of Africa. It is forty-two miles long, twenty-seven broad, about 100 in circumference, and thirty-three in diameter. It is fruitful, and famous for its wine. It also abounds with apples, melons, oranges, citrons, pomegranates, figs, olives, peaches, and plantations. The fir and palm-trees are the most common. The towns are, Canary the capital, Gualdera, and Geria.

CANARINA, in botany, a genus of plants of the class hexandria, and order monogynia: CAL. six-leaved; COR. six-cleft, and campanulate; STIG. SIX: CAPS. inferior, six-celled, many-seeded. Species one only, a native of the Canaries.

CANARIUM, in antiquity, from canis, a dog, a Roman sacrifice, wherein dogs of a red color were sacrificed, for a security of the fruits of the earth against the raging heats of Sirius in the dog-days.

CANARIUM, in botany, a genus of the diœcia order, in the pentandria class of plants. Its characters are, that it has male and female flowers; that in both the calyx has three leaves, and the corolla consists of three petals; the fruit is a drupa with a three-cornered nut. There is but one species, an East Indian tree.

CANA'RY, a kind of linnet, a dance, and a peculiar wine, are imported from the Canary Isles, and thence deriving their name.

I will to my honest knight Falstaff, and drink *canary* with him.—I think I shall drink pipe, wine first with him; I'll make him dance. *Shakspeare.*

Master, will you win your love with a French brawl?—How mean'st thou, brawling in French?—No, my complete master; but to jig off a tune at the tongue's end, *canary* to it with your feet, humour it with turning up your eyelids. *Id.*

Of singing birds, they have linnets, goldfinches, ruddocks, *canary-birds*, blackbirds, thrushes, and divers others. *Carew.*

CANARY, or CIVITAD DE PALMAS, the capital of the island of Canaria. It has an indifferent castle, a court of inquisition, and the supreme council of the rest of the Canary Islands. It is a bishop's see, and has four convents, two for men and two for women. It is about three miles in compass, and contains 12,000 inhabitants. The houses are only one story high, and flat at the top; but they are well built. The cathedral is a handsome structure.

CANARY BIRDS, in ornithology. See FRINGILLA.

CANARY GRASS. See PHALARIS.

CANARY ISLANDS, or CANARIES, are situated in the Atlantic Ocean, over against Morocco. They were formerly called the Fortunate Islands, on account of the temperate healthy air, and excellent fruits. The land is very fruitful both in wheat and barley. The cattle thrive well, and the woods are full of all sorts of game. The birds are well known throughout Europe. Sugar canes abound greatly, but the Spaniards first planted vines here, whence we have the wine called Canary. These islands were not unknown to the ancients; but they were forgotten till John de Betencourt discovered them, in 1402. It is said they were first inhabited by the Phœnicians, or Carthaginians, but the inhabitants could not tell from whence they were derived; on the contrary they did not know there was any other country in the world. Their language, manners, and customs, had no resemblance to those of their neighbours. They had no iron. The Spaniards obtained possession of them all, except Madeira, which belongs to the Portuguese; and they still retain them. The settlers are chiefly Spaniards, though there are some of the original natives remaining, whom they call Guanches. These are somewhat civilised by their intercourse with the Spaniards; and are a hardy, active, bold people. They live on the mountains, and their chief food is goats' milk. Their complexion is tawny and their noses flat. The Spanish vessels, when they sailed for the West Indies, always called at these islands, going and coming. Their names are ALLEGRANZA, CANARIA, FERRO, FUERTAVENTURA, GOMERA, GRACIOSA, INFERNO, LANCEROTTA, LOBOS, MADEIRA, PALMA, ROCCA, ST. CLARE, SALVAGES, and TENERIFFE. See those articles. Long. from 12° to 31° W. Lat. from 27° 30' to 29° 30' N.

CANCALLE, a sea-port town of France, in the department of the Morbihan, and ci-devant province of Upper Britanny. Here the British landed in 1758, in their way to St. Malo, where they burned a great number of ships in the harbour, and then retired without loss. It is eight miles from St. Malo.

CANCAMUM, among ancient Greek physicians, a gum resin, supposed to be gum lac.

CANCEL, *v.* & *n.*
CAN'CELLATED, *adj.*
CANCELLA'TION.

From Lat. *cancelli*; lattices; the mode of obliteration, by lines crossing each other. Hence to cross out, is to cancel by wiping out or expunging the contents of an instrument by two lines drawn in the manner of a cross. Blackstone uses the word in its technical and proper sense. To blot out; to supersede; to destroy; in reference to any thing written. To cancel a debt is, to cross the bill.

Now welcome night, thou night so long expected,
That long day's labour doth at last defray,
And all my cares which cruel love collected
Has summed in one, and *cancelled* for aye. *Spenser.*

Know then, I here forget all former griefs,
Cancel all grudge; repeal thee home again.
Shakspeare.

———————— but those elect
Angels, contented with their fame in heaven,
Seek not the praise of men: the other sort,
In might though wondrous, and in acts of war,
Nor of renown less eager, yet by doom
Cancelled from heaven and sacred memory,
Nameless in dark oblivion let them dwell. *Milton.*

Such a plot was layed,
Had not Ashley betrayed,
As had *cancelled* all former disasters,
And your wives had been strumpets
To his highness's trumpets,
And foot-boys had all been your masters.
Marvell.

My warm assistance gave thee birth,
Or thou hadst perished low in earth;
But upstarts, to support their station,
Cancel at once all obligation. *Gay.*

The tail of the castor is almost bald, though the beast is very hairy; and *cancellated*, with some resemblance to the scales of fishes. *Grew.*

Thou, whom avenging powers obey,
Cancel my debt, too great to pay,
Before the sad accounting day. *Roscommon.*

I pass the bills, my lords,
For *cancelling* your debts. *Southerne.*

In the proper sense of the word, *to cancel* is to deface an obligation, by passing the pen from top to

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bottom, or across it; which makes a kind of chequer lattice, called by the Latins *cancelli*. *Dr. A. Rees.*

CAN'CELEER, *s.* or } From Fr. *chancel-*
CAN'CELIER. } *lor;* the turn of a light-flown hawk upon the wing to recover her self, when she misses her aim in the stoop. Dr Rees (Cyclopedia) says, 'It is when a light-flown hawk, in her stooping, turns two or three times upon the wing, to recover herself before she seizes.'

> Nor with the falcon fetch a *cancelleer.*
> *T. Weever's Epigram.*

Also as a verb, to cancelier, to turn in flight.

> ——— the partridge sprung,
> He makes his stoop; but wanting breath, is forced
> To *cancelier*; then with such speed as if
> He carried lightning in his wings, he strikes
> The trembling bird. *Mass. Guard.*

CANCELLATA, in conchology, a species of arca, inhabiting the American Ocean, the shell of which is marked with the cancellated striæ, and bearded; the margin gaping in the middle.

CANCELLI, in building, lattice windows, or those made of cross bars disposed latticewise. It is also used for rails or balusters enclosing the communion table, a court of justice, or the like; and for the net-work in the inside of hollow bones.

CANCELLING, in the civil law, an act whereby a person consents that some former deed be rendered null and void; otherwise called recision.

CAN'CER, *n.* } Sax. *cancere;* Fr. *cancre;*
CAN'CERATE, *v.* } Ital. *cancro;* Span. *cancer;*
CAN'CEROUS. } Dutch, *kancker.* A virulent swelling, which generally suppurates, producing a hard, uneven, obstinate sore, which spreads and deepens by fibres which appear like the legs and claws of a crab; while its general appearance resembles the creature after which it is named.

> But striking his fist upon the point of a nail in the wall, his hand *cancerated*, he fell into a fever, and soon after died on't. *L'Estrange.*
>
> How they are to be treated when they are strumous, schirrus, or *cancerous*, you may see in their proper places. *Wiseman.*
>
> Any of these three may degenerate into a schirrus, and that schirrus into a *cancer.* *Id.*
>
> As when a *cancer* on the body feeds,
> And gradual death from limb to limb proceeds;
> So does the chilness to each vital part
> Spread by degrees, and creeps into the heart.
> *Addison.*

CAN'CER, *n. s.* Lat. *cancer.* A crabfish; the sign of the summer solstice.

> When now no more the alternate twins are fired,
> And *Cancer* reddens with the solar blaze,
> Short is the doubtful empire of the night. *Thomson.*

CANCER, in astronomy, one of the twelve signs, represented on the globe in the form of a crab, and thus marked (♋). It is the fourth constellation in the starry zodiac. See ASTRONOMY. The reason generally assigned for its name as well as figure, is a supposed resemblance which the sun's motion in this sign bears to the crab. As the latter walks backwards, so the former, in this part of his course, begins to go backwards, or recede from us. By others, the disposition of stars in this sign is supposed to have given the first hint to the representation of a crab. It gives name to a quadrant of the ecliptic, viz.

CANCER, TROPIC OF, in astronomy, a lesser circle of the sphere, parallel to the equator, and passing through the sign Cancer. See ASTRONOMY.

CANCER, in medicine, a roundish, unequal, hard, and livid tumor, generally seated in the glandulous part of the body, supposed to be so called, because it appears at length with turgid veins, shooting out from it, so as to resemble, as it is thought, the figure of a crab-fish. See MEDICINE. The matter of cancer was found by Dr. Crawford to give a green color to syrup of violets, and treated with sulphuric acid, to emit a gas resembling sulphuretted hydrogen, which he supposes to have existed in combination with ammonia in the ulcer. Hence the action of virulent pus on metallic salts. He likewise observed, that its odor was destroyed by aqueous chlorine, which he therefore recommends for washing cancerous sores. But although several medicines, both internal and external have been tried, and in some instances partially succeeded, the only method of cure on which reliance may be placed is that by extirpating the part affected.

CANCER, in zoology, a genus of insects of the order of aptera. The generic characters are these: they have eight legs (seldom ten or six), besides the two large claws which answer the purpose of hands. They have two eyes at a considerable distance from each other, and for the most part supported by a kind of pedunculi or foot-stalks; the eyes are likewise elongated and moveable; they have two clawed palpi, and the tail is jointed. The species have been well divided into these classes:

1. The crab, properly so called, having four filiform antennæ. See CRAB. 2. Pagarus antennæ, pedunculate, inhabiting cast-off shells. 3. Galathæa, antennæ unequal. 4. Astacus, or the lobster, with foliaceous tail. See LOBSTER. 6. Squilla, with a very short thorax. 6. Gammarus, antennæ pedunculate and simple. 7. Scyllarus, having two biarticulate plates instead of the hinder antennæ. See also SHRIMP.

CANCROMA, or boat-bill, in ornithology, a genus of birds belonging to the order of grallæ: the characters of which are,—the bill is broad, with a keel along the middle; the nostrils are small, and lodged in a furrow; the tongue is small, and the toes are divided. There are two species: 1. C. cancrophaga, or the brown boat-bill. In this species the under parts, instead of ash color, are of a pale rufous brown; the tail rufous ash; and the upper parts wholly of a cream color; the bill and legs of a yellow brown. It inhabits Cayenne, Guiana, and Brasil, and chiefly frequents such parts as are near the water: in such places it perches on the trees which hang over the streams, and like the king's-fisher, drops down on the fish which swim beneath. It has been thought to live on crabs likewise, whence the Linnæan name. 2. C. cochleari, the crested boat-bill, is of the size of a fowl; the length twenty-two inches. The bill is four inches long, and of singular form, not unlike a boat with the keel uppermost; the upper mandible has a prominent ridge at the top, and on each side of this a channel, at the bottom of which the nostrils are placed; these are oval, and situated obliquely; the general color of the bill is dusky; from the hind head springs a long black crest, the feathers which compose it narrow, and end in a point.

CANDAHAR. See Kandahar.

CANDELA Fumalis, the smoking candle, is an odoriferous mass, shaped like a candle, the use of which is to fumigate rooms where there is any contagion or noxious smell. The candela fumalis, or candela pro suffitu odorata, as it is also called, consists of aromatic powders, mixed up with a third or more of the charcoal of willow or lime tree, and reduced to a proper consistence with a mucilage of gum tragacanth, labdanum, or turpentine. It excites a grateful smell without any flame, and corrects the state of the air.

CAN'DENT, *adj.* Lat. *candens.* Hot; in the highest degree of heat, next to fusion.

> If a wire be heated only at one end, according as that end is cooled upward or downward, it respectively acquires a verticity, as we have declared in wires totally *candent.* *Brown.*

CANDEROS, in the materia medica, an East Indian gum, not much known among us, though sometimes imported. It has much the appearance of amber, only it is white and pellucid. Garcias and others tell us that the people of Borneo have the art of adulterating the crude camphor with large quantities of this gum.

CANDIA, the ancient Crete, one of the largest islands in the Mediterranean, and situate south of the Grecian Archipelago, is about 180 miles long, and twenty-five to thirty broad. The island abounds with mountains, the most remarkable of which are the Psilorite or Ida of the ancients, and the mountains of Sphachia or the white mountains, the summits of which are covered with snow nearly half the year. The fertile valleys abound with springs of excellent water. Of the natural advantages and salubrious climate of this island, travellers speak with raptures. The heat is never excessive; and in the plains violent cold is never felt. In the warmest days of summer the atmosphere is cooled by breezes from the sea. December and January are their only winter months, and then there is a copious fall of rain; the sky is obscured with clouds, and the north winds blow violently; but in February the ground is again overspread with flowers and rising crops; and the rest of the year is almost one continued fine day. Thus the air here is always found extremely congenial to delicate constitutions, and epidemical diseases are almost unknown. Fevers prevail here in the summer, but are not generally dangerous. This fine country is, however, infested with one dreadful disorder, the leprosy, which is infectious, and said to be instantaneously communicated by contact. The victims who are attacked by it, are driven from society, and confined to little ruinous houses on the way side. They are strictly forbidden to leave these dwellings, or hold intercourse with any person. Having generally beside their huts a small garden producing pulse, they feed poultry; and with what they obtain from passengers, find means to drag out a painful life in circumstances of shocking bodily distress. The disorder appears to be chiefly confined to the poor Greeks.

The coast of Candia abounds with excellent harbours, the principal of which are Grabusa on the west, the bay of Suda on the north, and Paleo Castro on the east. The south is almost inaccessible.

But little labor is here required to produce the necessaries or the luxuries of life. But the insecurity of property, under the tyranny of the Turks, prevents all attempts at extensive cultivation. It yields, however, abundance of oil, silk, honey, wax, saffron, figs, walnuts, apricots, almonds, oranges, citrons, olives, melons, and grapes, which grow very large, and produce wine of an excellent flavor. Shrubs and flowers also abound in this salubrious spot. Its principal manufacture is soap, which, though not so good as French soap, is still preferred by the Turks for its cheapness.

Candia is at present governed by three pachas, who reside respectively at Candia, Canea, and Retimo. For the earlier history of this island see Crete. It came into the possession of the Venetians by purchase, in the year 1194, and soon began to flourish under the laws of that republic. The inhabitants, encouraged by their masters, engaged in commerce and agriculture. The Venetian commandants readily afforded to those travellers who visited the island, every assistance necessary to enable them to extend and improve useful knowledge. Belon, the naturalist, is lavish in praise of their good offices, and describes, in an interesting manner, the flourishing state of that part of the island which he visited. The seat of government was established at Candia, the magistrates and officers, who composed the council, resided there. The provisor general was president. He possessed the chief authority; and his power extended over the whole principality. It continued in the possession of the Venetians for five centuries and a half. Cornaro held the chief command when it was threatened with a storm, on the side of Constantinople. The Turks, for a whole year, had been employed in preparing a vast armament. They deceived Cornaro, by assuring him that it was intended against Malta. In 1645, in the midst of a solemn peace, they appeared unexpectedly before Crete with a fleet of 400 sail, having on board 60,000 land forces, under the command of four pachas. The emperor Ibrahim, under whom this expedition was undertaken, had no fair pretext to offer in justification of the enterprise. He made use of all that perfidy which characterises the people of the east, to impose on the Venetian senate. He loaded their ambassadors with presents; directed his fleet to bear for Cape Matapan, as if they had been going beyond the Archipelago; and caused the governors of Tina and Cerigna to be solemnly assured, that the republic had nothing to fear for her possessions. At the very instant when he was making those assurances, his naval armament entered the gulf of Canea; and, passing between that city and St. Theodore, anchored at the mouth of Platania. The Venetians

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not expecting this sudden attack, had made no preparations to repel it. The Turks landed without opposition. The isle of St. Theodore is but a league and a half from Canea, and is only three quarters of a league in compass. The Venetians had erected two forts there; one of which, standing on the summit of the highest eminence, on the coast of that little isle, was called Turluru; the other on a lower situation, was named St. Theodore. It was an important object to the Mussulmans to make themselves masters of that rock, which might annoy their ships. They immediately attacked it with ardor. The first of those fortresses, being destitute of soldiers and cannon, was taken without striking a blow. The garrison of the other consisted of no more than sixty men. They made a gallant defence and stood out till the last extremity; and, when the Turks at last prevailed, their number was diminished to ten, whom the captain pacha cruelly caused to be beheaded. Being now masters of that important post, as well as of Lazaret, an elevated rock, standing above half a league from Canea, the Turks invested the city by sea and land. General Cornaro was struck, as with a thunder-clap, when he learned the descent of the enemy. In the whole island there were no more than a body of 3500 infantry, and a small number of cavalry. The besieged city was defended only by 1000 regular troops, and a few citizens, who were able to bear arms. He made haste to give the republic notice of his distress; and posted himself off the road, that he might the more readily succour the besieged city. He threw a body of 250 men into the town, before the lines of the enemy were completed. He afterwards made several attempts to strengthen the besieged with other reinforcements; but in vain. The Turks had advanced in bodies close to the town, had carried a half-moon battery, which covered the gate of Retimo; and were battering the walls night and day with their numerous artillery. The besieged defended themselves with resolute valor, and the smallest advantage which the besiegers gained cost them dear. Cornaro made an attempt to arm the Greeks, particularly the Spachiots, who boasted loudly of their valor. He formed a battalion of these. But the æra of their valor was long past. When they beheld the enemy, and heard the thunder of the cannon, they took to flight; not one of them would stand fire. While the senate of Venice were deliberating on the means to be used for relieving Canea, and endeavouring to equip a fleet, the Mahommedan generals were sacrificing the lives of their soldiers to bring their enterprise to a glorious termination. In different engagements they had already lost 20,000 warriors; but, descending into the ditches, they had undermined the walls, and blown up the most impregnable forts with explosions of powder. They sprung one of those mines beneath the bastion of St. Demetri. It overturned a considerable part of the wall, which crushed all the defenders of the bastion. That instant the besiegers sprung up with their sabres in their hands, and taking advantage of the general consternation of the besieged in that quarter, made themselves masters of the post. The besieged, recovering from their terror, attacked them with unequalled intrepidity. About 400 men assailed 2000 Turks already firmly posted on the wall, and pressed upon them with such obstinate and dauntless valor, that they killed a great number, and drove the rest down into the ditch. In this extremity, every person in the city was in arms. The Greek monks took up muskets; and the women, forgetting the delicacy of their sex, appeared on the walls among the defenders, either supplying the men with ammunition and arms, or fighting themselves; and several of those daring heroines lost their lives. For fifty days the city held out against all the forces of the Turks. If even at the end of that time, the Venetians had sent a naval armament to its relief, the kingdom of Candia might have been saved. Doubtless, they were not ignorant of this well-known fact. The north wind blows straight into the harbour of Canea. When it blows a little briskly, the sea rages. It is then impossible for any squadron of ships, however numerous, to form in line of battle in the harbour, and to meet an enemy. If the Venetians had set out from Cerigo with a fair wind, they might have reached Canea in five hours, and might have entered the harbour with full sails, without being exposed to one cannon shot; while none of the Turkish ships would have dared to appear before them; or, if they had ventured, must have been driven back on the shore, and dashed in pieces among the rocks. But, instead of thus taking advantage of the natural circumstances of the place, they sent a few galleys, which, not daring to double Cape Spada, coasted along the southern shore of the island, and failed of accomplishing the design of their expedition. At last, the Caneans, despairing of relief from Venice, seeing three breaches made in their walls, through which the infidels might easily advance upon them, exhausted with fatigue and covered with wounds, and reduced to the number of 500 men, who were obliged to scatter themselves round the walls, which were half a league in extent, and undermined in all quarters, demanded a parley, and offered to capitulate. They obtained very honorable conditions; and after a glorious defence of two months, which cost the Turks more than 20,000 men, marched out of the city with the honors of war. Those citizens who did not choose to continue in the city were permitted to remove; and the Ottomans faithfully observed their stipulations.

The Venetians, after the loss of Canea, retired to Retimo. The captain pacha laid siege to the citadel of Suda, situated in the entrance of the bay, on a high rock, of about a quarter of a league in circumference. He raised earthen batteries, and made an ineffectual attempt to level its ramparts. At last, despairing of taking it by assault, he left some forces to block it up from all communication, and advanced towards Retimo. That city, being unwalled, was defended by a citadel, standing on an eminence which overlooks the harbour. General Cornaro had retired thither. At the approach of the enemy, he advanced from the city, and waited for them in the open field. During the action, he encouraged his soldiers, by fighting in the ranks. A glorious death was the reward of his valor; but his fall determined the fate of Retimo. The Turks having landed additional forces, they introduced the plague, which was almost a constant attendant on their armies. This dreadful pest destroyed most part of the inhabitants. The rest escaped into the Venetian territories, and the island was left almost desolate. The siege of the capital commenced in 1646, and was protracted much longer than that of Troy. For two years the Turks scarce gained any advantages before that city. They were often routed by the Venetians, and sometimes compelled to retire to Retimo. In 1649 Ussein Pacha, who blockaded Candia, receiving no supplies, owing to the revolutions at Constantinople by the deposition and death of Ibrahim, and accession of Mahomet IV. was compelled to raise the siege, and retreat to Canea. The Venetians were then on the sea with a strong squadron. They attacked the Turkish fleet in the bay of Smyrna, burnt twelve of their ships and two galleys, and killed 6000 of their men. Some time after, the Mahommedans having landed an army on Candia, renewed the siege of the city with greater vigor, and made themselves masters of an advanced fort that was very troublesome to the besieged; which obliged them to blow it up. From 1650 to 1658, the Venetians, continuing masters of the sea, intercepted the Turks every year in the straits of the Dardanelles, and fought them in four naval engagements; in which they defeated their numerous fleets, sunk a number of their caravels, took others, and extended the terror of their arms even to the walls of Constantinople. That capital became a scene of tumult and disorder The grand seignior, alarmed, left the city with precipitation. These great successes revived the hopes of the Venetians and depressed the courage of the Turks. The latter converted the siege of Candia into a blockade, and suffered considerable losses. The Sultan, to exclude the Venetian fleet from the Dardanelles, caused two fortresses to be built at the entrance of the straits. He ordered the pacha of Canea to appear again before the walls of Candia, and to make every possible effort to gain the city. In the meantime the Venetians made several attempts on Canea. In 1660 the city was about to surrender, when the pacha of Rhodes reinforced it with a body of 2000 men. He doubled the extremity of Cape Melec, within sight of the Venetian fleet, which was becalmed off Cape Spada, and could not advance one fathom to oppose an enemy considerably weaker than themselves. Kiopruli, knowing that the murmurs of the people against the long continuance of the siege of Candia were rising to a height, and fearing a general revolt, set out from Constantinople about the end of 1666, at the head of a formidable army. Having escaped the Venetian fleet, which was lying off Canea, he landed at Palio Castro, and formed the lines around Candia. Under his command were four pachas, and the flower of the Ottoman forces. Those troops, being encouraged by their chiefs, and supported by a great quantity of artillery, performed prodigies of valor. All the exterior forts were destroyed. Nothing now remained to the besieged but the bare line of the walls, unprotected by fortresses; and these being battered, by an incessant discharge of artillery, soon gave way on all quarters. Still, however, (incredible as it may apppear) the Candians held out three years against all the forces of the Ottoman empire. At last they were about to capitulate, when the hope of assistance from France re-animated their valor. The expected succours arrived on the 26th of June, 1669. They were conducted by the duke of Noailles. Next day the ardor of the French prompted them to make a general sally. The duke of Beaufort, admiral of France, assumed the command. He was the first to advance against the Mussulmans, and was followed by a numerous body of infantry and cavalry. They rushed furiously upon the enemy, forced the trenches, and would have compelled them to abandon their lines and artillery, had not an unforeseen accident damped their courage. In the midst of the engagement a powder magazine blew up; the duke of Beaufort and the foremost of the combatants lost their lives; the French ranks were broken, and fled in disorder; and the duke of Noailles with difficulty effected a retreat within the walls of Candia. The French accused the Italians of having betrayed them; and on that pretext prepared to set off sooner than the time agreed upon. No intreaties of the commandant could prevail with them to delay their departure. This determined the fate of the city, which had only 500 men left to defend it. Morosoni capitulated with Kiopruli, to whom he surrendered the kingdom of Crete, excepting only the Suda, Grabusa, and Spina-Longa. The grand vizier made his entrance into Candia, Oct. 4th, 1670; and stayed eight months in it, inspecting the reparation of its walls and fortresses. The three fortresses left in the hands of the Venetians continued long in their possession, but were all taken at last. In short, after a war of 30 years continuance, in the course of which more than 200,000 men fell, Candia was entirely subdued by the Turks, in whose hands it still continues.

Candia, the capital of the above island, is a fortified town, containing from 12,000 to 15,000 inhabitants, by far the greater part of whom are Turks. The houses are mean and irregular. The manufacture of soap is carried on very extensively here. The harbour, once large and commodious, is now very much choked with sand and will not admit more than ten merchantmen. The Governor is a pacha of three tails, and seraskier or military commandant of the whole island. Long 25° 4′ E., lat. 35° 16′ N.

CAN'DIDATE, *v. adj.* & *n.*
Can'did, *adj.*
Can'didly,
Can'didness,
Can'dour.

Fr. *candide*; Ital. *candida*; Span. *candido*; Lat. *candidus*; *candidus* is from *candeo*, as *lucidus* is from *luceo*. Thus, in addition to white, it is applied to any thing that is bright and glowing, as to snow recently fallen; to polished silver; to the light of a candle. In this sense, however, it is rare in English. In process of time it was employed to designate all persons, who are expectants of any office, in obtaining which the suffrages of others are required, because among the Romans such persons, on such occasions, wore a garment more white than ordinary *(candida toga)*. It is metaphorically applied to ingenuousness, openness of temper, purity of mind; without prejudice or malice; or sincere and unpretending goodness.

It presently sees the guilt of a sinful action; and, on the other side, observes the *candidness* of a man's very principles, and the sincerity of his intentions. *South.*

The box receives all back; but, poured from thence,
The stones came *candid* forth, the hue of innocence. *Dryden.*

Thy first-fruits of poesy were given
To make thyself a welcome inmate there,
While yet a young probationer,
And *candidate* of heaven. *Id.*

We have often desired they would deal *candidly* with us; for, if the matter stuck only there, we would propose that every one should swear, that is a member of the church of Ireland. *Swift.*

The import of the discourse will, for the most part, if there be no designed fallacy, sufficiently lead *candid* and intelligent readers into the true meaning of it. *Locke.*

A *candid* judge will read each piece of wit,
With the same spirit that its author writ. *Pope.*
What could thus high thy rash ambition raise?
Art thou, fond youth, a *candidate* for praise? *Id.*
So many *candidates* there stand for wit,
A place at court is scarce so hard to get. *Anonymous.*

One would be surprised to see so many *candidates* for glory. *Addison.*

But let untender thoughts afar be driven,
Nor venture to arraign the dread decree,
For know to man, as *candidate* for heaven,
The voice of the Eternal said, Be free! *Beattie.*

Yet are the darkened eye, the withered face,
Or hoary hair, I never will repine;
But spare, O time, whate'er of mental grace,
Of *candour*, love, or sympathy divine,
Whate'er of fancy's ray or friendship's flame is mine. *Id.*

CANDIDATES, in the college of physicians, London, is the order of members, out of whom the fellows are chosen. They must be natives of England, doctors of physic, admitted to the degrees in our own universities, and ought to have practised four years before they are admitted into the order.

CANDIDATI MILITES, an order of soldiers, among the Romans, who served as the emperor's body-guards to defend him in battle. They were the tallest and strongest of the whole troops, and most proper to inspire terror. They were called candidati, because clothed in white, either that they might be more conspicuous, or because they were considered in the way of preferment.

CANDIDATI PRINCIPIS, were those who were recommended to any offices by the emperors. The candidatus principis was also an office in the court of the emperor of Constantinople, answering to a secretary of state among us.

CANDIDUS, in entomology, a species of cerambyx; color white, thorax and body fuscous, with two white stripes: its country unknown.

CAN'DIFY, *v. a.* Lat. *candifico*. To make white; to whiten.

CANDISH, a considerable province of **Asia**, in the dominions of the Great Mogul, bounded by Chytor and Malvo on the north, Orixa on the east, Deccan on the south, and Guzarat on the west. It is populous and rich; and abounds in cotton, rice, and Indigo. Brampore is the capital town. It is subject to the Poonah Mahrattas.

CANDITEERS, in fortification, frames to lay brushwood on to cover the workmen.

CAN'DLE, *n.*
CAN'DLE-BEAM,
CAN'DLE-CASE,
CAN'DLE-HOLDER,
CAN'DLE-LIGHT,
CAN'DLE-MINE,
CAN'DLE-SNUFF,
CAN'DLE-STICK,
CAN'DLE-STUFF,
CAN'DLE-TREES,
CAN'DLE-WASTER,
CAN'DLES'-ENDS.

Lat. *candela*; Ara. *gundel*; Per. *candel*; Fr. *chandelle*; supposed from *candidus*, white; but Goth. *kyndel*, from *kyndael*, is a fire-match; and *kyndil*, Sax. candel, a torch, a light; *καιω*, to burn. See KINDLE. The metaphorical beam of light is characterised according to the luminous body by or from which it is supposed to be protruded. It is hence that we speak of sun-beams and of moon-beams. Our ancestors spoke of candle-beams; and the sonneteer still sings of the lustre that beamed from the eye of his mistress. Candle-stick, Sax. condelsticca; condletreow is a stock or tree for a candle; that which holds the candle.

Candles'-ends, to drink off. A piece of romantic extravagance long practised by amorous gallants. It perhaps may be asked, why drinking off candles'-ends, for flap-dragons, should be esteemed an agreeable qualification? The answer is, that, as a feat of gallantry, to swallow a candles'-end formed a more formidable and disagreeable flap-dragon than any other substance, and therefore afforded a stronger testimony of zeal for the lady to whose health it was drank. See FLAP-DRAGON and DAGGERED ARMS.

Why doth the prince love him so then? Because he eats conger and fennel; and drinks off *candles'-ends* for flap-dragons. *Shakspeare.*

CANDLE-WASTERS; rakes who sit up all night, and therefore waste much candle. It certainly does not, as some have supposed, relate to the custom explained under the words candles'-ends; for a book-worm is called a candle-waster. See TODD.

Let wantons, light of heart
Tickle the senseless rushes with their heels;
For I am proverbed with a grandsire phrase,
To be a *candle-holder*, and look on. *Shakspeare.*

How far that little *candle* throws his beams!
So shines a good deed in a naughty world. *Id.*

The horsemen sit like fixed *candlesticks*,
With torch-staves in their hands; and their poor jades
Lob down their heads. *Id.*

By these blessed *candles* of the night,
Had you been there, I think you would have begged
The ring of me, to give the worthy doctor. *Id.*

Why, Petruchio is coming, in a new hat, and an old jerkin; a pair of old breeches, thrice turned; a pair of boots that had been *candle-cases*; an old rusty sword taken out of the town armory, with a broken hilt, and chapeless, with two broken points. *Id.*

CAN 88 CAN

Before the day was done, her work she sped,
And never went by candlelight to bed. *Dryd. Fab.*

The boding owl
Steals from her private cell by night,
And flies about the candlelight. *Swift.*

Such as are adapted to meals, will indifferently serve for dinners or suppers, only distinguishing between daylight and candlelight. *Id.*

Take a child, and, setting a *candle* before him, you shall find his pupil to contract very much, to exclude the light, with the brightness whereof it would otherwise be dazzled. *Ray.*

I know a friend, who has converted the essays of a man of quality into a kind of frame for his *candlesticks*. *Addison.*

I shall find him coals and *candlelight*. *Molineux to Locke.*

CANDLE. A tallow candle, to be good, must be part sheeps' and part bullocks' tallow. Hogs' tallow makes the candle gutter, and always gives an offensive smell, with a thick black smoke. The wick ought to be pure, sufficiently dry, and properly twisted; otherwise the candle will emit an inconstant vibratory flame, which is both prejudicial to the eyes and insufficient for the distinct illumination of objects. There are two sorts of tallow candles; the one dipped, the other moulded: the former are the common candles; the others the invention of the sieur le Brege at Paris. Candles are also made of spermaceti and wax.

CANDLE, MEDICATED. See BOUGIE.

CANDLE, SALE, or AUCTION BY INCH of, is when a small piece of candle, being lighted, the bystanders are allowed to bid for the merchandise that is selling; but the moment the candle is out, the commodity is adjudged to the last bidder. This mode of sale seems to have been borrowed from the church of Rome, where there is an excommunication by inch of candle, when the sinner is allowed to come to repentance while the candle continues burning; but after it is consumed he remains finally excommunicated.

CANDLES. See CHANDLERY.

CANDLE BOMBS, a name given to small glass bubbles, having a neck about an inch long, with a very slender bore, by means of which a small quantity of water is introduced into them, and the orifice afterwards closed up. The stalk being put through the wick of a burning candle, the flame soon rarifies the water into steam, by the

Now that the winter 's gone, the earth hath lost
Her snow-white robes, and now no more the frost
Candies the grass, or casts an icy cream
Upon the silver lake or chrystal stream;
But the warm sun thaws the benumbed earth,
And makes it tender; gives a second birth
To the dead swallow; wakes in hollow tree
The drowsy cuckoo and the humble-bee.
Carew. The Spring.

They have in Turkey confections like to candied conserves, made of sugar and lemons, or sugar and citrons, or sugar and violets, and some other flowers, and mixture of amber. *Bacon.*

With candy'd plantanes, and the juicy pine,
On choicest melons and sweet grapes they dine.
Waller.

CA'NDY; LION'S FOOT. See CATANANCHE.

CANDY, or SUGAR CANDY, a preparation of sugar made by melting and crystallising it six or seven times over, to render it hard or transparent. It is of three kinds: white, yellow, and red. The white comes from the loaf-sugar, the yellow from the cassonade, the brown from the muscavado.

CANDY, a kingdom of Asia, in the centre of the island of Ceylon, is separated from the country possessed by Europeans on the coast by almost impenetrable woods and mountains. The passes are extremely steep and difficult, and so little known, even to the natives, that the exact dimensions of these dominions have never been ascertained. The climate is particularly unhealthy to Europeans on account of the heavy fogs which prevail.

The country is divided into provinces and districts. A high range of mountains extends across the whole country, and divides the island into two different climates. On one side the rains are incessant, and on the other there has been a continued drought for several years. Several rivers intersect the country, but they are rendered unnavigable by the very rapid current during the rainy season, and they are almost dried up during the summer months. The Candians are divided into castes; the nobles form the first or highest rank,—the second includes the better artificers, such as goldsmiths, painters, &c.—the third the meaner kind of artificers, as barbers, weavers, and the common soldiers; the laborers of all descriptions and the peasantry are included in the fourth caste. They worship the idol Buddha.

The government is despotic, and supported by presents or contributions brought by the people, or rather enforced by the king's officers. They consist of money, corn, fruit, precious stones, and all articles of their own manufacture. The submission of the subject to the sovereign is almost unbounded. The former never dares appear on horseback; indeed this animal is only kept in the royal stud.

The capital (see below) has been frequently attacked by Europeans and again given up. It was taken by the Dutch in 1766, but they only kept possession about nine months. In 1802 a war again broke out, and the Candians submitted to the English army of 3000 men, under the command of Major Mendarval, who left here Major Davie, with a garrison. The garrison, however, being small, they soon suffered very materially from the climate, and were obliged to surrender, on condition of being allowed to march to Trincomalee. This treacherous people, however, left [illegible] and cruelly murdered the greater part of them in cold blood. Another expedition failed in 1803, but a third was resolved upon in 1815, and an army of [illegible] men took possession of the capital. In March, 1815, the monarch, Wikrama Raja Sinha, was finally deposed, and the kingdom annexed to the British dominions.

CANDY, the capital of the Candian dominions, about 112 miles from Trincomalee, and 108 from Columbo, stands on a plain, surrounded by mountains covered with thick jungle and almost impenetrable woods. The town is, as it were, fortified by a thick thorn hedge, and is approached by difficult narrow passes, guarded by gates of the same materials. The town stands near the banks of the river Mahavillaganga, and is formed of one principal street, about two miles long, with narrow lanes branching from it. At the extremity of the street is the palace, containing a great number of apartments, some of them curiously painted, and others ornamented with plate glasses. The principal building consists of two squares, one within the other; the interior is the royal residence. The houses of the town are very mean. Long. 80° 47′ E., lat. 7° 23′ N. See CEYLON.

CANE, n. & v. t. } Kanah; Lat. canna. A
CA'NY. } kind of strong reed, of which walking staffs are made; a walking-staff. A lance; a staff made of cane, whence the Spanish juego de cannas. The plant which yields the sugar. To beat with a walking-stick. Cany signifies full of canes, or consisting of canes.

Shall I to please another wine-sprung mind
Lose all mine own; God hath given me a measure
Short of his cane and body; must I find
A pain in that wherein he finds a pleasure? *Herbert.*

But in his way lights on the barren plains
Of Sericana, where Chineses drive
With sails and wind their cany waggons light. *Milton.*

The king thrust the captain from him with his cane, whereupon he took his leave, and went home. *Harvey.*

Alexander, the youth these sports has known,
Of whom the cup is now spectator grown;
Judge-like thou sit'st, to praise or to arraign
The flying skirmish of the darted cane. *Dryden.*

If the poker be out of the way, or broken, stir the fire with your master's cane. *Swift.*

If the strong cane support thy walking hand,
Chairmen no longer shall the wall command.
Gay's Trivia.

This cane or reed, grows plentifully both in the East and West Indies. Other reeds have their skin hard and dry, and their pulp void of juice; but the skin of the sugarcane is soft. It usually grows ten or five feet high, and about half an inch in diameter. The stem or stalk is divided by knots a foot and a half apart. At the top it puts forth long green tufted leaves, from the middle of which arise the flower and the seed. They usually plant them in pieces a foot and a half long, below the top of the flower; and they are ordinarily ripe in ten months, at which time they are found quite full of a white succulent marrow, whence is expressed the liquor of which sugar is made. *Chambers.*

And the sweet liquor on the cane bestow,
From which prepared the luscious sugars flow.
Blackmore.

Ambition! does ambition there reside?
Yes! when the boy in manly mood astride,
Of headstrong prowess innocently vain,
Canters, the jockey of his father's *cane*. *Bishop.*

Cane, Grotto Del, i. e. the dog's grotto, a cave of Naples, seven miles from Puzzoli, where many dogs have been suffocated to show the effect of a mephitic vapor, which rises a foot above the bottom of this grotto.

Cane, in botany. See Arundo.

Cane, Sugar. See Saccharum

CANELLA, in botany, a genus of the monogynia order, and dodecandria class of plants, natural order twelfth, holoraceæ: cal. three-lobed; the petals five; the antheræ twelve to twenty-one, growing on an urceolated or bladder-shaped nectarium; and the fruit is a trilocular berry with two seeds. There is but one known species, C. alba. It grows usually about twenty feet high, and eight or ten inches in thickness, in most of the Bahama islands. The leaves are narrow at the stalk, growing wider at their ends, which are broad and rounding, having a middle rib only; they are very smooth, and of a light shining green. The whole plant is very aromatic, the bark particularly, being used in distilling, and in greater esteem in the more northern parts of the world than in Britain. The bark is the canella alba of the shops. It is brought to us rolled up into long quills, thicker than the cinnamon, and both outwardly and inwardly of a whitish color, lightly inclining to yellow. Infusions of it in water are of a yellowish color, and smell of the canella: but they are rather bitter than aromatic. Tinctures in rectified spirit have the warmth of the bark, but little of its smell. Proof spirit dissolves the aromatic as well as the bitter matter of the canella, and is therefore the best menstruum. This bark is a warm pungent aromatic, though not of the most agreeable kind: nor are any of the preparations of it very grateful. Canella alba is often employed where a warm stimulant to the stomach is necessary, and as a corrigent of other articles. It is now, however, little used in composition by the London College; the only officinal formula which it enters being the pulvis aloeticus; but with the Edinburgh College it is an ingredient in the tinctura amaro, vinum amarum, vinum rhei, as it is useful as covering the taste of some other articles.

CANEPHORIA, a ceremony celebrated by the Athenian virgins on the eve of their marriage day, in which the maid, conducted by her father and mother, went to the temple of Minerva, carrying with her a basket full of little curiosities, as presents to Diana, to engage her to make the marriage state happy; or, as the scholiast of Theocritus has it, the basket was intended as a kind of honorable amends made to that goddess, the protectrix of virginity, for abandoning her party; or as a ceremony to appease her wrath. Suidas calls it a festival in honor of Diana. Canephoria was also a festival in honor of Bacchus, celebrated particularly by the Athenians, in which the young maids carried golden baskets full of fruit, covered to conceal the mystery from the uninitiated.

CANES, in Egypt and other eastern countries, a poor sort of buildings for the reception of strangers and travellers, who are accommodated with a room at a small price, but with no other necessaries; so that, excepting the room, there are no greater accommodations in these houses than in the deserts except that there is a market near.

Canes Venatici, in astronomy, the greyhounds, two new constellations first established by Hevelius, between the tail of the Great Bear and the arms of Bootes, above the Coma Berenices. The first is called asterion, being next the Bear's tail; the other chara

CANGA, in the Chinese affairs, a wooden clog borne on the neck by way of punishment for divers offences The canga is composed of two pieces of wood notched, to receive the criminal's neck; the load lies on his shoulders, and is more or less heavy according to the quality of his offence. Some cangas weigh 200lbs.; the generality from fifty to sixty. The mandarins condemn to the punishment of the canga Sentence of death is sometimes changed for this kind of punishment.

CANGE (Sieu Du). See Fresne Du.

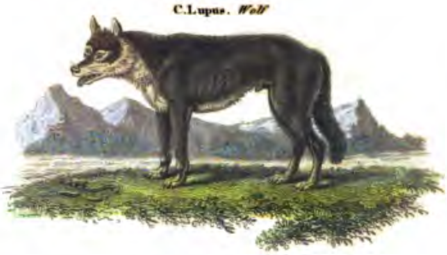
CANGIAGIO, or Cambiasi, (Lewis), one of the most eminent of the Genoese painters, was born in 1527. His works at Genoa are very numerous; and he was employed by the king of Spain to adorn part of the Escurial. He was not only expeditious, but worked equally well with both hands; and, by that unusual power, executed more designs, and finished grand works with his own pencil, in a much shorter time, than most other artists could do with several assistants. At the age of seventeen, being employed in painting the front of an elegant house, in fresco, on his entering on the scaffold the other artists concluded from his youth that he could be nothing more than a grinder of colors, and, therefore, when he took up the pallet, they attempted to prevent him, being apprehensive that he would spoil the work, but after a few strokes of his pencil they acknowledged their mistake, and allowed him to proceed. He died in 1585.

CANICULA, in astronomy, a star in the constellation canis major, called also the dog-star; by the Greeks Σειριος, Sirius. It is the tenth in order in the Britannic catalogue; in Tycho's and Ptolemy's it is the second It is situated in the mouth of the constellation, and is of the first magnitude, being the largest and brightest star in the heavens. From the rising of this star not cosmically, or with the sun, but heliacally, that is, its emersion from the sun's rays, the ancients reckoned their dies caniculares, canicular days, or dog days. The Egyptians and Ethiopians began their year at the rising of the canicula, reckoning to its rise again the next year. The reason of their choice of the canicula, before the other stars, to compute their time by, was not only the superior brightness of that star, but because its heliacal rising was in Egypt a time of singular note, as falling on the greatest augmentation of the Nile. Ephestion adds, that from the aspect and color of canicula the Egyptians drew prognostics concerning the rise of the Nile; and, according to Florus, predicted the future state of the year; so that the first rising of this star annually observed with great attention.

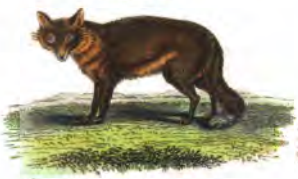
NATURAL HISTORY.

Order Canis

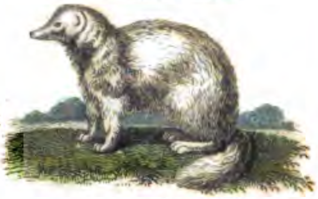
C. Lupus. *Wolf*



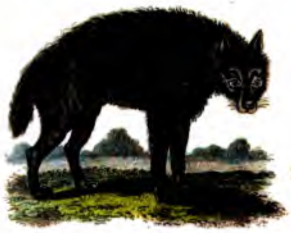
C. Vulpes. *Fox*



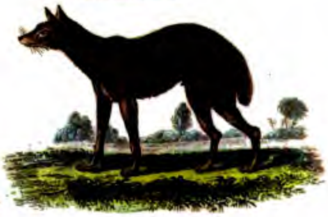
C. Lagopus. *Arctic Fox*



C. Hyæna. *Striped Hyæna*



C. Aureus. *Jackall*



J. Shury Sc.

London, Published by Thomas Tegg, 73, Cheapside, Jan. 1, 1828.

ANICULAR, adj. Lat. c
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TORY.

C.Lagopus. Arctic Fox

Aureus. Jackall

J.Shury Sc.

CANIC'ULAR, *adj.* Lat. *canicularis.* Belonging to the dog-star; as canicular, or dog days.

In regard to different latitudes, unto some the *canicular* days are in the winter, as unto such as are under the equinoctial line; for unto them the dog-star ariseth, when the sun is about the tropick of Cancer, which season unto them is winter. *Browne's Vul. Err.*

CANICULUM, or CANICULUS, in the Byzantine antiquities, a golden standish or ink vessel, decorated with precious stones, wherein was kept the sacred encaustum, or red ink, wherewith the emperors signed their decrees, letters, &c. The name alludes to the figure of a dog which it represented, or rather because it was supported by the figures of dogs. The caniculum was under the care of a particular officer of state.

CANINANA, in zoology, a species of serpent found in America, and esteemed one of the less poisonous kinds. It grows to about two feet long; and is green on the back, and yellow on the belly. It feeds on eggs and small birds: the natives cut off the head and tail, and eat the body as a delicate fish.

CANINE', *adj.* Lat. *caninus.* Having the properties of a dog. Canine hunger, or bulimia, in medicine, is an appetite that cannot be satisfied.

A kind of women are made up of *canine* particles: these are scolds, who imitate the animals out of which they were taken, always busy and barking, and snarl at every one that comes in their way. *Addison.*

It may occasion an exorbitant appetite of usual things, which they will take in such quantities, till they vomit them up like dogs; from whence it is called *canine.* *Arbuthnot.*

CANINE MADNESS. See MEDCINE.

CANINE TEETH, are two sharp edged teeth in each jaw: one on each side, placed between the incisores and molares.

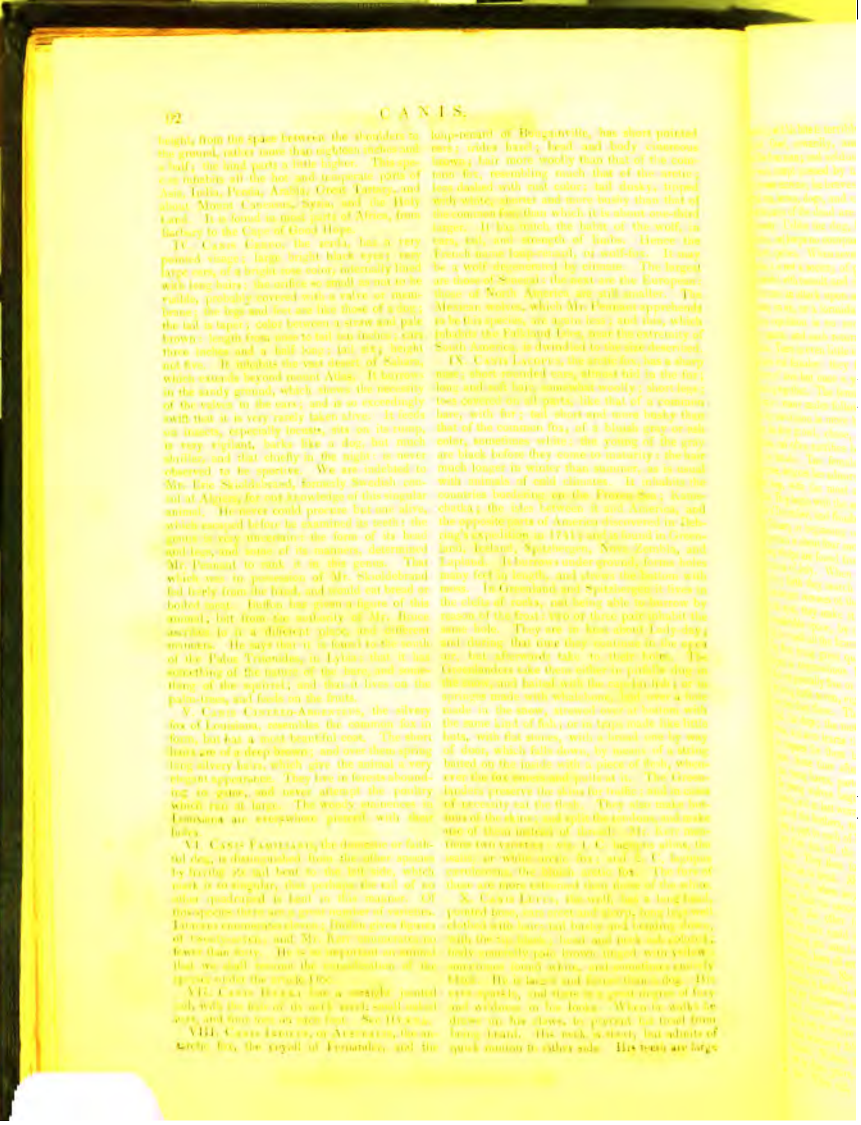
CANINI (John Angelo and Mark Anthony), two brothers, natives of Rome, celebrated for their love of antiquities. John excelled in designs for engraving on stones, particularly heads; Mark engraved them. They were encouraged by Colbert to publish a succession of heads of the heroes and great men of antiquity, designed from medals, antique stones, and other ancient remains; but John died at Rome soon after the work was begun: Mark Anthony, however, procured assistance, finished and published it in Italian, in 1669. The cuts of this edition were engraved by Canini, Picard, and Valet; and a curious explanation is given, which discovers the skill of the Caninis in history and mythology. The French edition of Amsterdam, 1731, is spurious.

CANIS, in zoology, the dog, a genus of quadrupeds, belonging to the order of feræ. The characters of the dog are these: six fore-teeth in the upper jaw, those in the sides longer than the intermediate ones, which are lobated; in the under jaw there are also six fore-teeth, those on the sides being lobated. He has six grinders in the upper, and seven in the lower jaw. The teeth called dog-teeth are four, one on each side, both in the lower and upper jaw, sharp-pointed, bent a little inward, and at a distance from any of the rest. Zoologists commonly reckon fourteen species of this genus. Mr. Kerr, in his Animal kingdom, enumerates seventeen: but zoological arrangement seems not yet to have arrived at its perfection. Mr. Pennant, with considerable propriety (as Mr. Kerr remarks), excludes all the hyenæ from this genus. Indeed to ordinary readers it must appear somewhat strange, to class animals of such very opposite natures as the fox, the wolf, and the hyenæ, under the same genus with the dog. Adopting Mr. Kerr's arrangement in general, we state the different species and varieties as follows:—

I. CANIS ADIVE, the barbary fox, or chacal of Buffon, the jackal adive, has a long and slender nose, sharp upright ears, long bushy tail; color, a very pale brown; space above and below the eyes black; from behind each ear there is a black line, which soon divides into two, which extend to the lower part of the neck; and the tail is surrounded with three broad rings. This species is of the size of the common fox, but the limbs are shorter, and the nose is more slender.

II. CANIS ANTARCTICUS, the new Holland dog, or dog of New South Wales, is thus described by Mr. Kerr:—'the tail is bushy and hangs downwards; the ears are short and erect; and the muzzle is pointed. It inhabits New Holland; is rather less than two feet high; and about two feet and a half in length. His head resembles that of a fox, having a pointed muzzle, garnished with whiskers, and short erect ears; the body and tail light brown; paler towards the belly, on the sides of the face and throat. The hind parts of the fore-legs, the fore parts of the hind-legs, and all the feet, are white. On the whole it is a very elegant, but fierce and cruel, animal; from which, with its figure, the total want of the common voice of the dog, and from general resemblance in other respects, it seems more properly to belong to the wolf kind.'

III. CANIS AUREUS, the schackal, or jackal, as described by Pennant, has yellowish brown irides; ears erect, formed like those of a fox, but shorter and less pointed; hairy, with white within; brown without, tinged and dusky: head shorter than that of a fox, and nose blunter: lips black, and somewhat loose: neck and body very much resembling those of that animal, but the body more compressed; the legs have the same resemblance, but are longer: tail thickest in the middle, tapering to the point: five toes on the fore-feet, the inner toe very short, and placed high: four toes on the hind feet, all covered with hair even to the claws. The hairs are much stiffer than those of a fox, but scarcely so stiff as those of a wolf; short about the nose; on the back three inches long; on the belly shorter: those at the end of the tail four inches long: color of the upper part of the body a dirty tawny; on the back, mixed with black: lower part of the body of a yellowish white: tail tipt with black; the rest of the same color with the back: the legs of an unmixed tawny brown: the fore-legs marked (but not always) with a black spot on the knees; but on no part are those vivid colors which could merit the title of golden, bestowed on it by Kæmpfer. The length from the nose to the root of the tail is little more than twenty-nine inches English: the tail, to the ends of the hairs, ten inches and three quarters, the tip reaching to the top of the hind legs: the



height, from the space between the shoulders to the ground, rather more than eighteen inches and a half; the hind parts a little higher. This species inhabits all the hot and temperate parts of Asia, India, Persia, Arabia, Great Tartary, and about Mount Caucasus, Syria, and the Holy Land. It is found in most parts of Africa, from Barbary to the Cape of Good Hope.

IV. CANIS CERDO, the zerda, has a very pointed visage; large bright black eyes; very large ears, of a bright rose color, internally lined with long hairs; the orifice so small as not to be visible, probably covered with a valve or membrane; the legs and feet are like those of a dog; the tail is taper; color between a straw and pale brown: length from nose to tail ten inches; ears three inches and a half long; tail six; height not five. It inhabits the vast desert of Sahara, which extends beyond mount Atlas. It burrows in the sandy ground, which shews the necessity of the valves to the ears; and is so exceedingly swift that it is very rarely taken alive. It feeds on insects, especially locusts, sits on its rump, is very vigilant, barks like a dog, but much shriller, and that chiefly in the night: is never observed to be sportive. We are indebted to Mr. Eric Skioldebrand, formerly Swedish consul at Algiers, for our knowledge of this singular animal. He never could procure but one alive, which escaped before he examined its teeth: the genus is very uncertain: the form of its head and legs, and some of its manners, determined Mr. Pennant to rank it in this genus. That which was in possession of Mr. Skioldebrand fed freely from the hand, and would eat bread or boiled meat. Buffon has given a figure of this animal; but from the authority of Mr. Bruce ascribes to it a different place, and different manners. He says that it is found to the south of the Palus Tritonidis, in Lybia; that it has something of the nature of the hare, and something of the squirrel; and that it lives on the palm-trees, and feeds on the fruits.

V. CANIS CINEREO-ARGENTEUS, the silvery fox of Louisiana, resembles the common fox in form, but has a most beautiful coat. The short hairs are of a deep brown; and over them spring long silvery hairs, which give the animal a very elegant appearance. They live in forests abounding in game, and never attempt the poultry which run at large. The woody eminences in Louisiana are everywhere pierced with their holes.

VI. CANIS FAMILIARIS, the domestic or faithful dog, is distinguished from the other species by having its tail bent to the left side, which mark is so singular, that perhaps the tail of no other quadruped is bent in this manner. Of this species there are a great number of varieties. Linnæus enumerates eleven; Buffon gives figures of twenty-seven, and Mr. Kerr enumerates no fewer than forty. He is so important an animal that we shall reserve the consideration of the species under the article DOG.

VII. CANIS HYÆNA has a straight jointed tail, with the hair of its neck erect; small naked ears, and four toes on each foot. See HYÆNA.

VIII. CANIS [illegible], or AUSTRALIS, the antarctic fox, the [illegible] of Fernandez, and the loup-renard of Bougainville, has short pointed ears; irides hazel; head and body cinereous brown; hair more woolly than that of the common fox, resembling much that of the arctic; legs dashed with rust color; tail dusky, tipped with white, shorter and more bushy than that of the common fox; than which it is about one-third larger. It has much the habit of the wolf, in ears, tail, and strength of limbs. Hence the French name loup-renard, or wolf-fox. It may be a wolf degenerated by climate. The largest are those of Senegal: the next are the European: those of North America are still smaller. The Mexican wolves, which Mr. Pennant apprehends to be this species, are again less; and this, which inhabits the Falkland Isles, near the extremity of South America, is dwindled to the size described.

IX. CANIS LAGOPUS, the arctic fox, has a sharp nose; short rounded ears, almost hid in the fur; long and soft hair, somewhat woolly; short legs; toes covered on all parts, like that of a common hare, with fur; tail short and more bushy than that of the common fox, of a bluish gray or ash color, sometimes white; the young of the gray are black before they come to maturity: the hair much longer in winter than summer, as is usual with animals of cold climates. It inhabits the countries bordering on the Frozen Sea; Kamschatka; the isles between it and America, and the opposite parts of America discovered in Behring's expedition in 1741; and is found in Greenland, Iceland, Spitzbergen, Nova Zembla, and Lapland. It burrows under ground, forms holes many feet in length, and strews the bottom with moss. In Greenland and Spitzbergen it lives in the clefts of rocks, not being able to burrow by reason of the frost: two or three pair inhabit the same hole. They are in heat about Lady-day; and during that time they continue in the open air, but afterwards take to their holes. The Greenlanders take them either in pitfalls dug in the snow, and baited with the capelin fish; or in springes made with whalebone, laid over a hole made in the snow, strewed over at bottom with the same kind of fish; or in traps made like little huts, with flat stones, with a broad one by way of door, which falls down, by means of a string baited on the inside with a piece of flesh, whenever the fox enters and pulls at it. The Greenlanders preserve the skins for traffic; and in cases of necessity eat the flesh. They also make buttons of the skins; and split the tendons, and make use of them instead of thread. Mr. Kerr mentions two varieties: viz. 1. C. lagopus albus, the snowy, or white arctic fox; and 2. C. lagopus cærulescens, the bluish arctic fox. The furs of these are more esteemed than those of the white.

X. CANIS LUPUS, the wolf, has a long head, pointed nose, ears erect and sharp, long legs well clothed with hair; tail bushy and bending down, with the tip black; throat and neck ash colored; body generally pale brown, tinged with yellow; sometimes found white, and sometimes entirely black. He is larger and fiercer than a dog. His eyes sparkle, and there is a great degree of fury and wildness in his looks. When he walks he draws in his claws, to prevent his tread from being heard. His neck is stiff, but admits of quick motion to either side. His teeth are large and sharp; and his bite is terrible, as his strength is great. Cruel, cowardly, and suspicious, the wolf flies from man; and seldom ventures out of the woods, except pressed by hunger: but when this becomes extreme, he braves danger, and will attack men, horses, dogs, and cattle of all kinds; even the graves of the dead are not proof against his rapacity. Unlike the dog, he is an enemy to all society, and keeps no company even with those of his own species. When several wolves appear together, it is not a society of peace, but of war; it is attended with tumult and dreadful howlings, and indicates an attack upon some large animal, as a stag, an ox, or a formidable mastiff. This military expedition is no sooner finished than they separate, and each returns in silence to his solitude. There is even little intercourse between the males and females: they feel the mutual attractions of love but once a year, and never remain long together. The females come in season in winter: many males follow the same female; and this association is more bloody than the former; for they growl, chase, fight, and tear one another, and often sacrifice him that is preferred by the female. The female commonly flies a long time, fatigues her admirers, and retires while they sleep, with the most alert or most favorite male. They begin with the old females about the end of December, and finish with the young ones in February or beginning of March. The time of gestation is about four months and a half; and young whelps are found from the end of April to the month of July. When the females are about to bring forth they search for a concealed place in the inmost recesses of the forest. After fixing on the spot, they make it smooth and plain for a considerable space, by cutting and tearing up with their teeth all the brambles and brush-wood. They then bring great quantities of moss, and prepare a commodious bed for their young, which are generally five or six, though sometimes they bring forth seven, eight, and even nine, but never less than three. They come into the world blind, like dogs; the mother suckles them some weeks, and soon learns them to eat flesh, which she prepares for them by tearing it into small pieces. Some time after she brings them field mice, young hares, partridges, and other fowls. The young wolves begin by playing with these animals, and at last worry them; then the mother pulls off the feathers, tears them in pieces, and gives a part to each of her young. They never leave their den till the end of six weeks or two months. They then follow their mother, who leads them to drink. She conducts them back to the den, or, when any danger is apprehended, obliges them to conceal themselves elsewhere. Though, like other females, the she wolf is naturally more timid than the male; yet, when her young are attacked, she defends them with intrepidity, loses all sense of danger, and becomes perfectly furious. She never leaves them till their education is finished, till they are so strong as to need no assistance or protection, and have acquired talents for rapine, which generally happens in ten or twelve months after their first teeth (which commonly fall out in the first month) are replaced. Wolves are full grown at the end of two or three years, and live fifteen or twenty years. When old, they turn whitish, and their teeth are much worn. They sleep, but more during the day than the night, and it is always a slight slumber. They drink often; and, in the time of drought, when there is no water in the hollows, or in the trunks of old trees, they repair, several times in a day, to the brooks or rivulets. Though extremely voracious, if supplied with water, they can pass four or five days without meat. The wolf has great strength, especially in the anterior parts of the body, in the muscles of the neck and jaws. He carries a sheep in his mouth, and, at the same time, outruns the shepherds; so that he can only be stopped or deprived of his prey by dogs. His bite is cruel, and always more obstinate in proportion to the smallness of the resistance; for, when an animal can defend itself, he is cautious and circumspect. He never fights but from necessity. When wounded with a ball, he cries; and yet, when despatching him with bludgeons, he complains not. When he falls into a snare, he is so overcome with terror, that he may either be killed or taken alive without resistance: he allows himself to be chained, muzzled, and led any where, without exhibiting the least symptom of resentment or discontent. The senses of the wolf are excellent, but particularly that of smelling, which often extends farther than his eye. The odor of carrion strikes him at the distance of more than a league. He likewise scents live animals very far, and hunts them a long time by following their track. When he issues from the wood, he never loses the wind. He stops upon the borders of the forest, smells on all sides, and receives the emanations of living or dead animals; brought to him from a distance by the wind. Though he gives the preference to living animals; yet he devours the most putrid carcases. He is fond of human flesh; and, if stronger, he would perhaps eat no other. Wolves have been known to follow armies, to come in troops to the field of battle, where bodies are carelessly interred, to tear them up, and to devour them with an insatiable avidity. And, when once accustomed to human flesh, are said ever after to attack men. Wolves of this vicious disposition are called loups garoux by the French peasants, who suppose them to be possessed with some evil spirits; and of this nature were the were-wulfs of the old Saxons. The wolf inhabits the continents of Europe, Asia, Africa, and America; Kamtschatka, and even as high as the arctic circle. Those of North America are the smallest; and, when reclaimed, are the dogs of the natives: the wolves of Senegal are the largest and fiercest; they prey in company with the lion. They are found in Africa as low as the Cape. In the east, and particularly in Persia, wolves are exhibited as spectacles to the people. When young, they are learned to dance, or rather to perform a kind of wrestling with a number of men. Buffon brought up several of them: 'When young, or during the first year,' he informs us, 'they are very docile, and even caressing; and, if well fed, neither disturb the poultry nor any other animal: but at the age of eighteen months or two years, their natural ferocity appears, and they must be chained to prevent them from running off and doing mischief. I brought up one till the age of eighteen or nineteen months, in a court along with fowls none of which he ever attacked; but, for his first essay, he killed the whole in one night, without eating any of them. Another, having broken his chain, ran off, after killing a dog with whom he had lived in great familiarity.' In England king Edgar is said first to have attempted the extirpation of wolves, by commuting the punishments of certain crimes into the acceptance of a certain number of wolves' tongues from the criminal; and in Wales, by converting the tax of gold and silver into an annual tax of 300 wolves' heads. We find, however, that some centuries after the reign of this monarch, these animals were increased to such a degree as to become again the object of royal attention: accordingly Edward I. issued his royal mandate to Peter Corbet to superintend and assist in the destruction of them in the several counties of Gloucester, Worcester, Hereford, Salop, and Stafford; and in the adjacent county of Derby, certain persons at Wormhill, says Camden, held their lands by the duty of hunting and taking the wolves that infested the country, whence they were styled wolvehunt. Farther back, in Athelstan's reign, wolves abounded so much in Yorkshire, that a retreat was built at Flixton, in that county, 'to defend passengers from the wolves, that they should not be devoured by them:' and such ravages did those animals make during winter, particularly in January, when the cold was severest, that the Saxons distinguished that month by the name of the wolf month. They also called an outlaw wolf's-head, as being out of the protection of the law, proscribed, and as liable to be killed as that destructive beast.

Ireland was infested by wolves for many centuries after their extinction in England; for there are accounts of some being found there as late as 1710, the last presentment for killing of wolves being made in the county of Cork about that time. In many parts of Sweden the number of wolves has been considerably diminished by placing poisoned carcases in their way: but in other places they are found in great multitudes. Hunger sometimes compels them to eat lichens: these vegetables were found in the body of one killed by a soldier; but it was so weak, that it could scarcely move. It probably had fed on the lichen vulpinus, which is a known poison to these animals. Madness, in certain years, is apt to seize the wolf. The consequences are often very melancholy. Mad wolves will bite hogs and dogs, and the last again the human species. The symptoms are the same with those attendant on the bite of a mad dog. Fury sparkles in their eyes; a glutinous saliva distils from their mouths; they carry their tails low, and bite indifferently men and beasts. It is remarkable that this disease happens in the depth of winter. Often, towards spring, wolves get upon the ice of the sea, to prey on the young seals, which they catch asleep: but this repast often proves fatal to them; for the ice, detached from the shore, carries them to a great distance from land, before they are sensible of it. In some years a large district is by this means delivered from these pernicious beasts; which are heard howling in a most dreadful manner, far in the sea. When wolves come to make their attack on cattle, they never fail attempting to frighten away the men by their loud cries; but the sound of the horn makes them fly. There is nothing valuable in the wolf but his skin, which makes a warm durable fur. His flesh is so bad, that it is rejected with abhorrence by all other quadrupeds; no animal but a wolf will voluntarily eat a wolf. The smell of his breath is exceedingly offensive. As, to appease hunger, he swallows indiscriminately everything he can find, corrupted flesh bones, hair, skins half tanned and covered with lime, he vomits frequently. In fine, the wolf is consummately disagreeable; his aspect is base and savage, his voice dreadful, his odor insupportable, his disposition perverse, his manners ferocious; odious and destructive when living, and, when dead, perfectly useless, except for his fur. Mr. Kerr enumerates four other varieties of this species, viz. 2. C. lupus albus, the white wolf, found near the Jenisea, in the eastern parts of Asiatic Russia, much valued on account of its fur. 3. C. lupus fasciatus, the striped wolf. It is of a gray color striped with black, and inhabits the Cape of Good Hope. 4. C. lupus flavus, the yellow wolf, found in France and Germany, having a thicker fur, and more yellow color than the common kind. It is more wild, but less destructive, as it never troubles the flocks, or the habitations of men. 5. C. lupus niger, the black wolf. This variety inhabits Canada, and is of a uniform black color. It is not so long as the common kind; the ears are larger, more erect and more distant, but in every other circumstance it resembles the common European wolf.

XI. Canis Mesomelas, the capesch of Schreber, the tenlie, or kenlie, of the Hottentots, the Cape jackal, has erect yellowish brown ears, mixed with a few scattered black hairs: the head is of a yellowish brown, mixed with black and white, growing darker towards the hind part; the sides are of a light brown, varied with dusky hairs: the body and also the back part of the legs are of a yellowish brown, lightest on the body; the throat, breast, and belly white. On the neck, shoulders, and back, is a band of black. The tail is bushy, of a yellowish brown: marked on the upper part with a longitudinal stripe of black, and towards the end encircled with two rings of black, and is tipt with white. In length, the animal is two feet and three quarters, to the the origin of the tail: the tail is one foot. It inhabits the countries about the Cape of Good Hope, and is found as high as the line.

XII. Canis Mexicanus, has a smooth tail, bent downwards. The body is ash colored, variegated with dusky stripes and tawny spots, on the forehead, neck, breast, belly, and tail. Its head is large, and neck thick. It has great jaws and strong teeth. Above its mouth are bristles as large, but not so hard, as the spines of a hedgehog. Seba calls it the quauhpecolti, or mountain cat; and Hernandes stiles it the xoloitcuintli, or Mexican wolf. It inhabits the warm parts of Mexico and New Spain, and agrees with the European wolf in its manners; whence it is also called lupus, though ranked as a different species. There is also a white Mexican wolf.

XIII. Canis Thous, or the Surinam wolf,

has a smooth tail bent downwards. The body is gray on the upper and white on the under parts. Its face has a wart over each eye, on each cheek, and under the throat. It is about the size of a large cat; and, according to Linnæus, is found at Surinam. It is mentioned also by Pennant.

XIV. CANIS VIRGINIANUS, the gray fox of Catesby, &c. has a sharp nose; sharp, long, upright ears; legs long; color gray, except a little redness about the ears. It inhabits Carolina, and the warmer parts of North America, and differs from the arctic fox in form, and the nature of its dwelling: agreeing with the common fox in the first, but not in the last. It never burrows, but lives in hollow trees; it gives no diversion to the sportsman; for after a mile's chase, it takes to its retreat; it has no strong smell; it feeds on poultry, birds, &c. These foxes are easily made tame; their skins, when in season, are used for muffs.

XV. 1. CANIS VULPES, the common fox, has a straight tail, white at the point. His body is yellowish, or rather straw-colored; his ears are small and erect; his lips are whitish, and his fore feet black. From the base of the tail a strong scent is emitted, which to some people is very fragrant, and to others extremely disagreeable. The fox is a native of almost every quarter of the globe, and is of such a wild and savage nature, that it is impossible fully to tame him. He is esteemed the most sagacious and crafty of all beasts of prey. The former quality he shows in his method of providing himself with an asylum, where he retires from pressing dangers, dwells, and brings up his young: and his craftiness is chiefly discovered by the schemes he falls upon to catch lambs, geese, hens, and all kinds of small birds. The fox fixes his abode on the border of the wood, in the neighbourhood of cottages: he listens to the crowing of the cocks and the cries of the poultry. He scents them at a distance; he chooses his time with judgment; he conceals his road as well as his design: he slips forward with caution, sometimes even trailing his body, and seldom makes a fruitless expedition. If he can leap the wall, or get in underneath, he ravages the poultry yard, puts all to death, and then retires softly with his prey, which he either hides under the herbage, or carries off to his kennel. He returns in a few minutes for another, which he carries off, or conceals in the same manner, but in a different place. In this way he proceeds till the progress of the sun, or some movements in the house, advertise him that it is time to retire to his den. He plays the same game with the catchers of thrushes, woodcocks, &c. He visits the nets and bird-lime very early in the morning, carries off successively the birds which are entangled, and lays them in different places, especially near the sides of highways, in the furrows, under the herbage or brushwood, where they sometimes lie two or three days; but he knows perfectly where to find them when he is in need. He hunts the young hares in the plains, seizes old ones in their seats, never misses those which are wounded, digs out the rabbits in the warrens, discovers the nests of partridges and quails, seizes the mothers on the eggs, and destroys a vast quantity of game. The fox is exceedingly voracious; besides flesh of all kinds, he eats, with equal avidity, eggs, milk, cheese, fruits, and particularly grapes. When the young hares and partridges fail him, he makes war against rats, field mice, serpents, lizards, toads, &c. Of these he destroys vast numbers; and this is the only service he does to mankind. He is so fond of honey, that he attacks the wild bees, wasps, and hornets. They at first put him to flight by a thousand stings; but he retires only for the purpose of rolling himself on the ground to crush them; and he returns so often to the charge, that he obliges them to abandon the hive, which he soon uncovers, and devours both the honey and wax. In a word he eats fish, lobsters, grasshoppers, &c. The fox is not easily, and never fully tamed: he languishes when deprived of liberty; and, if kept too long in a domestic state, he dies of chagrin. Foxes produce but once a year; and the litter commonly consists of four or five, seldom six, and never less than three. When the female is full, she retires, and seldom goes out of her hole, where she prepares a bed for her young. She comes in season in the winter; and young foxes are found in the month of April. When she perceives that her retreat is discovered, and that her young have been disturbed, she carries them off one by one, and goes in search of another habitation. The young are brought forth blind; like the dog's, they grow eighteen months or two years, and live thirteen or fourteen years. The senses of the fox are as good as those of the wolf; the organs of his voice are more pliant and perfect. The wolf sends forth only frightful howlings; but the fox barks, yelps, and utters a mournful cry like that of the peacock. He varies his tones according to the different sentiments with which he is affected: he has an accent peculiar to the chase, and tones of desire, of complaint, and of sorrow. He has another cry expressive of acute pain, which he utters only when he is shot, or has some of his members broken; for he never mourns over any other wound; and, like the wolf, may be beat till he is killed with a bludgeon without complaining: but he always defends himself to the last with great courage and bravery. His bite is obstinate and dangerous; and the severest blows will hardly make him quit his hold. In winter, particularly during frost, he yelps perpetually; but, in summer, he is almost entirely silent, and, during this season, casts his hair. He sleeps sound, in a round form, and may be easily approached without wakening; but, when he only reposes himself, he extends his hind legs, and lies on his belly. It is in this situation that he spies the birds along the hedges, and meditates schemes for their surprise. The fox flies when he hears the explosion of a gun, or smells gunpowder. He is exceedingly fond of grapes, and does much mischief in vineyards. Various methods are daily employed to destroy foxes: they are hunted with dogs; iron traps are frequently set at their holes; which are sometimes smoked to make them run out, that they may fall into the snares, or be killed by dogs or fire-arms. The chase of the fox requires less apparatus, and is more amusing than that of the wolf. To the latter every dog has great reluctance; but all dogs hunt the fox spontaneously and with pleasure; for, though his odor be strong, they often prefer him to the stag or the hare.

Of all animals the fox has the most significant eye, by which it expresses every passion of love, fear, hatred, &c. He is remarkably playful; but, like all savage creatures, half reclaimed, will on the least offence bite those he is most familiar with. He is a great admirer of his bushy tail, with which he frequently amuses and exercises himself, by running in circles to catch it: and in cold weather, wraps it round his nose. The smell of this animal is in general very strong, and that of his urine remarkably fetid. It is so obnoxious, that it has often proved the means of his escape from the dogs. In warm weather it will quit its habitation for the sake of basking in the sun, or to enjoy the free air; but then it rarely lies exposed, but chooses some thick brake, that it may rest secure from surprise. Crows, magpies, and other birds who consider the fox as their common enemy, will often, by their notes of anger point out its retreat. The skin of this animal is furnished with a warm soft fur, which in many parts of Europe is used to make muffs, and to line clothes. Vast numbers are taken in the Valais, and the Alpine parts of Switzerland. At Lausanne there are furriers who are often in possession of between 2000 and 3000 skins, all taken in one winter. There are several varieties of the fox, differing either in color or form, viz.: 2—4. C. vulpes alopex, the brant fox, or field fox of Linnæus, considered by him as a distinct species, has a straight tail, with a black tip, and a blackish fur, thicker than that of the common kind. Mr. Kerr says, it 'inhabits Europe, Asia, and Chili, and is less frequent, smaller, and of a darker color than the common fox, to which it is very similar in all other respects. That described by Mr. Pennant came from Pennsylvania. Authors do not seem properly agreed about the animal to which this name is given: at least the coal fox, of Buffon, and the brant fox, of Pennant, are considerably different, though quoted by Gmelin as synonymous.' They are therefore added as sub-varieties. *a.* C. vulpes alopex Americanus, the brant fox, as described by Gesner and Linnæus, is of a fiery redness; and called by the first brand-fuchs, by the last brandraef; it is scarcely half the size of the common fox: the nose is black, and much sharper; the space round the ears ferruginous; the forehead, back, shoulders, thighs, and sides, black, mixed with red, ash-color, and black; the belly yellowish; the tail black above, red beneath, and cinereous on its side. It is a native of Pennsylvania. *b.* C. vulpes alopex Europæus, the charbonnier, or coal fox of Buffon, has remarkably black feet and legs, and inhabits that part of France formerly called Burgundy. It is of a silvery gray color, and has the tail tipt with white. C. lycaon, the black fox, is the most cunning of the genus, and its skin the most valuable; a lining of it is, in Russia, esteemed preferable to the finest sables: a single skin will sell for 400 rubles. It inhabits the northern parts of Europe, Asia, and North America.

CANIS MAJOR, the great dog, in astronomy, a constellation of the southern hemisphere, below Orion's feet, somewhat to the westward. See ASTRONOMY.

CANIS MINOR, the little dog, in astronomy, a constellation of the northern hemisphere; called also by the Greeks Procyon, and by the Latins Antecanis and Canicula. See ASTRONOMY.

CANISIUS (Henry), a native of Nimeguen, whose real name was De Hondt, one of the most learned men of his time, was professor of canon law at Ingolstadt. His principal works are, 1. Summa Juris Canonici. 2. Antiquæ Lexicones, 7 vols. 4to, a very valuable work. He died in 1609.

CAN'ISTER, *n. s.* Lat. *canistrum.* A small basket. A small vessel in which any thing, such as tea or coffee, is laid up.

White lilies in full *canisters* they bring,
With all the glories of the purple spring. *Dryden.*

CAN'KER, *v. a.* & *n.* } Lat. *cancer.* It
CAN'KERBIT, *part. adj.* } seems to have the same meaning and original with cancer, but to be accidentally written with a *k*, when it denotes bad qualities in a less degree; or canker might come from, Fr. *chancre*, Ital. *canchero*, and cancer from the Latin. A worm that preys upon and destroys fruits. A fly that commits the same species of depredation. Any thing that corrupts or consumes. An eating or corroding humor. Corrosion: virulence. A kind of wild worthless rose; the dog rose. To grow corrupt: implying something venomous and malignant. To corrupt; to corrode. To infect; to pollute.

His chamber all was hanged about with rolls
And old records from ancient times derived
Some made in books, some in long parchment scrolls,
That were all worm-eaten and full of *canker* holes.
Spenser.

And loathfull idlenes he doth detest,
The *canker*-worme of everie gentle brest;
The which to banish with faire exercise
Of knightly feates, he daylie doth devise.
Spenser. Mother Hubberd's Tale.

I am not glad, that such a sore of time
Should seek a plaister by a contemn'd revolt,
And heal the inveterate *canker* of one wound
By making many. *Shakspeare.*

As with age his body uglier grows,
So his mind with *cankers.* *Id.*

Yet writers say, as in the sweetest bud
The eating *canker* dwells, so eating love
Inhabits in the finest wits of all. *Id.*
Know, my name is lost,
By treason's tooth baregnawn and *cankerbit.* *Id.*

Or if these *cankered* foes, as most men say,
So mighty be, that gird this wall of clay,
What makes it hold so long, and threatened ruin stay.
Fletcher's Purple Island.

Restore to God his due in tithe and time:
A tithe purloined *cankers* the whole estate. *Herbert.*

It is the *canker* and ruin of many mens' estates, which, in process of time, breeds a public poverty.
Bacon.

There be of flies, caterpillers, *canker* flies, and bear flies. *Walton's Angler.*

As the Jessean hero did appease
Saul's stormy rage and stopped his black disease,

So the learn'd bard with artful song suppressed
The swelling passion of his *canker'd* breast;
And in his heart kind influences shed
Of country's love, by truth and justice bred. *Marvell.*

Draw a cherry with the leaf, the shaft of a steeple, single or *canker* rose. *Peacham.*

A huffing, shining, flattering, cringing coward,
A *canker* worm of peace, was raised above him.
Otway.

To some new clime, or to thy native sky,
Oh friendless and forsaken virtue! fly:
The Indian air is deadly to thee grown;
Deceit and *cankered* malice rule thy throne. *Dryden.*

That eating *canker*, grief, and wasteful spite,
Preys on the rosy bloom of youth and beauty. *Rowe.*

An honest man will enjoy himself better in a moderate fortune, that is gained with honour and reputation, than in an overgrown estate, that is *cankered* with the acquisitions of rapine and exaction. *Addison.*

No longer live the *cankers* of my court;
All to your several states with speed resort;
Waste in wild riot what your land allows,
There ply the early feast and late carouse. *Pope.*

Thus, when a villain crams his chest,
Gold is the *canker* of the breast:
'Tis avarice, insolence, and pride,
And every shocking vice beside. *Gay.*

Beyond the lowly vale of shepherd's life
They never roam'd: secure beneath the storm
Which in ambition's lofty land is rife;
Where peace and love are *canker'd* by the worm
Of pride, each bud of joy industrious to deform.
Beattie.

How hideous and forlorn! where ruthless Care,
With *cankering* tooth corrodes the seeds of life;
And deaf with passions' storms when pines Despair,
And howling furies rouse the eternal strife. *Id.*

Canker, in farriery, a disease incident to horses, consisting of a kind of fungous excrescence in their feet, which sometimes destroys the whole hoof, and so the horse. See Farriery.

Canker, in gardening, a disease incident to trees, proceeding chiefly from the nature of the soil, which makes the bark rot and fall. If the canker be in a bough, cut it off; in a large bough, at some distance from the stem; in a small one, close to it; but, for over-hot strong ground, the ground is to be cooled about the roots with pond mud and cow dung.

CANNA, in botany, Indian flowering reed; a genus of the monogynia order, and monandria class of plants, natural order eighth, scitamineæ: cal. triphyllous: cor. erect, divided into six parts, with a distinct lip, bipartite and rolled back; the style lanceolate, and growing to the corolla: caps. crowned with the calyx. There are five species, viz. 1. C. coccinea, hath larger leaves than any of the other four species, and the stalks rise much higher. The flowers are produced in large spikes; and are of a bright crimson, or rather scarlet color. 2. C. glauca, with a very large yellow flower, is a native of South America. 3. C. Indica, or common broad-leaved flowering cane, is a native of both Indies; the inhabitants of the British islands in America call it Indian shot, from the roundness and hardness of the seeds. It has a thick fleshy tuberous root; which divides into many irregular knobs; it sends out many large oval leaves, without order. 4. C. angustifolia, a plant common to the tropical parts of America. 5. C. juncea, a Chinese plant, with a small rufous flower and grassy leaves.

Canna likewise denotes a sort of long measure, otherwise called by modern authors a cane, by the Latins calamus, and in scripture a reed.

CAN'NABINE, *adj.* Lat. *cannobinus.* Hempen.

CANNABIS, in botany, hemp; a genus of the pentandria order, and diœcia class, natural order fifty-third, scabridæ: cal. of the male quinquepartite, of the female monophyllous, entire, and gaping at the side: cor. none, styles two: the fruit is a nut, bivalved, within the closed calyx. Of this there is but one species, viz. C. sativa. It is propagated in the rich fenny parts of Lincolnshire in great quantities, for its bark, which is useful for cordage, cloth, &c. and the seeds abound with oil. Hemp is always sown on a deep, moist, rich, soil such as is found in Holland, Lincolnshire, and the fens of the island of Ely, where it is cultivated to great advantage; as it might be in many other parts of England, where there is a soil of the same kind; but it will not thrive on clayey or stiff cold land. The ground on which hemp is to be sown, should be well ploughed, and made very fine by harrowing. When the plants are come up, they should be hoed out as turnips are, leaving them two feet apart; observe also to cut down all weeds, which, if well performed in dry weather, will destroy them. This crop, however, will require a second hoeing, in about six weeks after the first; and, if this is well performed, the crop will require no further care. The first season for pulling hemp is usually about the middle of August, when they begin to pull what they call the simble hemp, being that which is composed of the male plants; but it would be much better to defer this for a fortnight or three weeks longer, until those male plants have fully shed their farina or dust, without which the seeds will prove only empty husks. These decay soon after they have shed their farina. The second pulling is a little after Michaelmas, when the seeds are ripe. This is usually called karle hemp, and consists of the female plants which were left. This karle hemp is bound in bundles of a yard compass, statute measure, which are laid in the sun for a few days to dry; and then it is stacked up, or housed, to keep it dry till the seed can be threshed out. An acre of hemp, on a rich soil, will produce nearly three quarters of seed, which, together with the unwrought hemp, is worth £6 to £8. Hemp is esteemed very effectual for destroying weeds; but this it accomplishes by impoverishing the ground, and thus robbing them of their nourishment; so that a crop of it must not be repeated on the same spot. Some seeds of a large kind of hemp, growing in China, were some years ago sent by the East India Company to the Society for the encouragement of Arts, Manufactures, and Commerce. From the leaves of hemp pounded and boiled in water, the natives of the East Indies prepare an intoxicating liquor, of which they are very fond. The plant when fresh, has a rank narcotic smell; the water in which the stalks are soaked, in order to separate the tough rind for mechanic uses, is said to be violently poisonous, and to produce its effects almost as soon as drank. The seeds also have some smell of the herb, and their taste is unctuous and sweetish: they are recommended, boiled in milk, or triturated with water into an emulsion, against coughs, heat of urine, and the like.

CANNÆ, in ancient geography, a town of Apulia, in the Adriatic, at the mouth of the river Aufidus, rendered famous by a terrible overthrow which the Romans received from the Carthaginians under Hannibal. The Roman consuls, Æmilius Paulus and Terentius Varro, being authorised by the Senate to quit the defensive plan, and take the chance of a battle, marched from Canusium, and encamped a few miles east, in two unequal divisions, with the Aufidus between them. In this position they meant to wait for an opportunity of engaging to advantage; but Hannibal, whose critical situation, in a desolate country without refuge or allies, could admit of no delay, found means to inflame the vanity of Varro by some trivial advantages in skirmishes between the light horse. Varro, elated with this success, determined to bring matters to a speedy conclusion. The Romans were more numerous than the Carthaginians; but the latter were superior in cavalry. The army of the former consisted of 87,000 men; that of the latter of 40,000 foot and 1000 horse. Without entering into the particulars of the battle, which is fully narrated by the Roman historians, it is sufficient to say that the most moderate computation makes the number of Romans killed to amount to 45,000, among whom were Æmilius Paulus the consul, and the pro-consuls Servilius and Attilius. The scene of action is marked by the name of Pezzo di Sangue, the Field of Blood. In 1201 the archbishop of Palermo and his rebellious associates, who had taken advantage of the nonage of Frederick of Suabia, were cut to pieces at Cannæ by Walter de Brienne, sent by the pope to defend the young king's dominions. The traces of this town are very faint, consisting of fragments of altars, cornices, gates, walls, vaults, and underground granaries. It was destroyed the year before the battle; but, being rebuilt, became an episcopal see in the infancy of Christianity. It was again ruined in the sixth century, but seems to have subsisted many ages later; for we read of its contending with Barletta for the territory, which till then had been enjoyed in common by them; and in 1284 Charles I. issued an edict for dividing the lands, to prevent future litigation. The prosperity of the towns along the coast, which increased in wealth and population by embarkations for the crusades and by traffic, proved the annihilation of the great inland cities; and Cannæ was probably abandoned entirely before the end of the thirteenth century.

CANNAY, one of the Western Isles of Scotland, south-west of Sky. It is fertile and verdant, and has vast ranges of basaltic pillars, rising above each other, from the sea, somewhat resembling the Giant's Causeway in Ireland. See BASALTES.

CANNEL COAL. See AMPELITES and COAL.

CANNEQUINS, in commerce, white cotton cloths brought from the East Indies. They are much used in trading on the coast of Guinea, particularly about the rivers Senegal and Gambia. They are folded square, and are about eight ells long.

CANNES, a town of France, in the department of the Var, and ci-devant province of Provence, on the coast of the Mediterranean, with a barbour and a castle. There is an excellent fishery for pilchards, and good fruit is grown in the environs. Napoleon Buonaparte landed here on his return from Elba, 1st March, 1815.

CAN'NIBAL, *n.* } An anthropophagite,
CAN'NIBALLY, *adj.* } a man-eater. In the
CAN'NIBALISM, } manner of a cannibal.
The practice of man-eating.

CANNIBALS. See ANTHROPOPHAGI.

CANNING (George), was born in London, April 11, 1770. His father, a man of considerable abilities and literary cultivation, had offended his family by marrying a lady without fortune, and died in 1771, leaving his widow destitute. She had recourse to the stage for support, but was not very successful, and was afterwards twice married. She lived to see the success of her son, from whom she ever received the tenderest marks of filial love. Mr. Canning inherited a small estate in Ireland, was educated at Eton, where he was distinguished for industry, vigour of mind, and elegance of taste, and, at the age of fifteen, formed the plan of a periodical called the *Microcosm*, of which he was the editor. In 1787 he was entered at Oxford. His vacations were passed with Sheridan, by whom he was introduced to Burke, Fox, and other distinguished whigs. Although Sheridan announced him as the future ornament of his party, yet he was brought into parliament in 1793 by Mr. Pitt. During the first session he remained silent. His maiden effort was made in 1794, on the Sardinian treaty, and rather disappointed expectation. In 1796, he was under-secretary of state. In 1797, he projected, with some of his friends, the Anti-Jacobin, or Weekly Examiner, of which Gifford was appointed editor, and to which he contributed. In 1798, he supported Wilberforce's motion for the abolition of the slave-trade. In July, 1800, he married Joanna, daughter of general Scott, a lady with a fortune of £100,000. The administration being dissolved in 1801, he became a member of the opposition, until the restoration of Pitt in 1804. In 1807, he was appointed secretary of state for foreign affairs in the Portland administration. A political misunderstanding with lord Castlereagh led to a duel between him and that minister, in which he was slightly wounded. This dispute occasioned the dissolution of the ministry. He invariably supported the admission of the Catholics into power, purely as a matter of expediency. To Mr. Canning was principally owing the first blow which shook the throne of Napoleon; the British policy in Spain was directed and animated by him. "If there was any part of his political life," he declared, "in which he gloried, it was that, in the face of every difficulty, discouragement, and prophecy of failure, his had been the hand which had committed England to an alliance with Spain." In 1812 he was elected member of Parliament for Liverpool; from

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vards twice married. She lived to see the
ss of her son, from whom she ever received
nderest marks of filial love. Mr. Canning
ited a small estate in Ireland, was educated
on, where he was distinguished for industry,
r of mind, and elegance of taste, and, at the
of fifteen, formed the plan of a periodical
d the *Microcosm*, of which he was the
r. In 1787 he was entered at Oxford. His
ions were passed with Sheridan, by whom he
introduced to Burke, Fox, and other distin-
ıed whigs. Although Sheridan announced
as the future ornament of his party, yet he
brought into parliament in 1793 by Mr.
During the first session he remained
t. His maiden effort was made in 1794, on
Sardinian treaty, and rather disappointed
ctation. In 1796, he was under-secretary of
In 1797, he projected, with some of his
ds, the Anti-Jacobin, or Weekly Examiner,
hich Gifford was appointed editor, and to
h he contributed. In 1798, he supported
berforce's motion for the abolition of the
e-trade. In July, 1800, he married Joanna,
ghter of general Scott, a lady with a fortune
£100,000. The administration being dis-
ed in 1801, he became a member of the op-
tion, until the restoration of Pitt in 1804. In
7, he was appointed secretary of state for
ign affairs in the Portland administration. A
tical misunderstanding with lord Castlereagh
to a duel between him and that minister, in
ch he was slightly wounded. This dispute
sioned the dissolution of the ministry. He
riably supported the admission of the Catho-
into power, purely as a matter of expediency.
Mr. Canning was principally owing the first
which shook the throne of Napoleon; the
ish policy in Spain was directed and ani-
ed by him. "If there was any part of his
tical life," he declared, "in which he gloried,
as that, in the face of every difficulty, discou-
ement, and prophecy of failure, his had been
hand which had committed England to an
ance with Spain." In 1812 he was elected
nber of Parliament for Liverpool; from

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which he was also returned in 1814, 1818, 1820. In 1814, he was appointed minister to Portugal, and remained absent about two years. In 1819, he declared his hostility to parliamentary reform in any shape; and his speech on lord John Russell's motion for reform, in 1822, is among the most finished specimens of his eloquence. On the impeachment of the queen, he declared, that "towards the object of that investigation, he felt an unaltered regard and affection;" and soon after resigned the presidency of the board of control, and went abroad. Having been nominated governor-general of India, he was on the point of embarking, when the death of the marquis of Londonderry called him to the cabinet as secretary for foreign affairs (Sept. 16, 1822). One of his earliest acts, in this situation, was to check the French influence in Spain. In 1825, he communicated to foreign ministers the determination of his majesty to appoint *chargés d'affaires* to Colombia, Mexico, and Buenos Ayres. In answer to the charge of having encouraged the attack upon Portugal, by having permitted the occupation of Spain by France, he uttered the memorable words: "Was it necessary that we should blockade Cadiz? No. I looked another way; I resolved that if France had Spain, it should not be Spain with the Indies. I called the new world into existence, to redress the balance of the old." April 12, 1827, his appointment to be prime minister was announced. His administration was terminated by his death, the 8th of August following; but not until it had been crowned by the treaty of London (July 6), for the settlement of the affairs of Greece.—As a statesman, he was liberal, profound, consistent, and independent. His eloquence was persuasive and impassioned; his reasoning clear and logical; his manner graceful; his expression winning; and his whole appearance prepossessing. His wit was brilliant, and his satire was extremely caustic. He died poor. His remains were deposited in Westminster Abbey.

CAN'NIPPERS, *n. s.* corrupted from CALLIPERS; which see.

CAN'NON, *n.*
CAN'NONADE, *v.*
CAN'NON-BALL, *n.*
CAN'NON-BULLET, *n.*
CAN'NON-SHOT, *n.*
CAN'NONIER.
} Ital. *cannone*; Fr. *cannon*, from *cane*, a pipe, meaning a large tube. A great gun for battery. A gun larger than can be managed by the hand. They are of so many sizes that they decrease in the bore from a ball of forty-eight pounds to a ball of five ounces. To cannonade: to play the great guns; to batter or attack with great guns. A cannonier is the engineer that manages the cannon.

CANNON. These destructive missile engines have long been of considerable importance in military tactics. Their invention must obviously have been subsequent to the discovery of gunpowder. Mezeray states that King Edward struck terror into the French army, by five or six pieces of cannon; it being the first time they had encountered such thundering machines. In the list of aids raised for the redemption of king John of France, in 1368, mention is made of an officer in the French army, called the master of the king's cannon, and of his providing four large cannon for the garrison of Harfleur. But father Daniel, in his life of Philip of Valois, produces a proof from the records of the chamber of accounts at Paris, that cannon and gunpowder were used in the year 1338. The Germans carry the invention of cannon farther back, and ascribe it to Albertus Magnus, a Dominican monk, about the year 1250. But Isaac Vossius assures us that they were known in China upwards of 1900 years ago; being employed by the Emperor Kitey, in the year of Christ 85.

Cannon were originally made of bars of iron fitted together lengthways, or of sheets of iron rolled up and fastened together, and hooped with iron rings, and sometimes of wood. They were ponderous, clumsy, cumbrous, in a great measure unmanageable, and could not be transported from one place to another, but with great difficulty and labor. They were chiefly employed for throwing large stones like the machines of the ancients, which they succeeded. These were gradually supplanted by brass cannon, which had much smaller calibers, and threw iron bullets instead of stones, but produced in a few hours greater effects than the others could in many days. These guns were first cast of a mixture of copper and tin, called gun-metal from that circumstance, which continued to be employed for the same purpose for a long time before cast iron was made use of. As the use of artillery, however, became more general, and the number of cannon greatly increased, iron guns were invented by way of lessening the expense. An idea, however, that prevailed of their being very liable to burst when much heated by firing, retarded the general introduction of them into military service, and was the cause of their being made much heavier than brass guns of the same caliber. And this apprehension was strengthened by some accidents that took place, either through improper management, or the carelessness and unskilfulness of the early founders; this has militated against the general use of them even down to the present time. When cast, however, with iron obtained from good ore, they resist bursting as much as brass cannon, and possess great advantages over them.

At present, cannon take their names from the weights of the balls, which they respectively discharge. Thus a piece that discharges a ball of twenty-four pounds, is called a twenty-four pounder; one that takes a ball of twelve pounds is called a twelve pounder; and so of the rest, divided into the following sorts.

Ship-guns, consisting of forty-two, thirty-six, twenty-four, eighteen, twelve, nine, six and three pounders.

Garrison guns, consisting of forty-two, thirty-two, twenty-four, eighteen, twelve, nine and six pounders.

Battering guns, consisting of twenty-four, eighteen, and twelve pounders, and sometimes, though but seldom, of forty-two pounders.

Field pieces, consisting of twelve, nine, six, three, two, one and a half, one, and half-pounders.

The different parts of a gun will be best understood by a reference to plate II. MISCELLANY, fig. 6, in which *a b* is the length of the gun; *a e* the first reinforce; *e f* the second reinforce; *f b* the chase; *h b* the muzzle; *a h* the cascable; *a c* the breech; *c d* the vent field; *f i* the chace girdle; *r s* the base ring and ogee; *t* the vent astragal and fillets; *p q* the first reinforce ring and ogee; *v w* the second reinforce ring and ogee; *x* the chace astragal and fillets; *z* the muzzle astragal and fillets; *n* the muzzle mouldings; *m* the swelling of the muzzle; *a i* the breech mouldings.

The vacant cylinder, wherein the powder and ball are lodged, is called the bore, and the entrance of the bore the mouth of the gun. The cylindric parts *t*, by which the gun is fixed upon its carriage, are called trunnions; and the handles on brass pieces are called dolphins, from the fish whose form they represent. The diameter of the bore is called the caliber of the piece. Lastly, the difference between the diameters of the shot and the bore, is called the windage of the gun.

The mode of casting cannon is too important to be passed unnoticed in this article. This process was, until about half a century ago, considered an arduous undertaking; and so little were the fundamental principles of the art understood, that we are assured that not one in three of the shells cast for the mortar service could be admitted into the stores. Such have been the improvements made, that thousands of articles which used to be from necessity made of wrought iron, are now to be had from the foundries at less than one-fifth of their former prices; while the material itself has been so highly perfected, that instances have been known of cast-iron being sufficiently soft to bear the file, and sufficiently ductile to undergo the hammer. Such, indeed, could not be done but at a considerable expense; nor does it appear that much good could result in general. With respect to military apparatus, it is found expedient to have the whole of our cannon, mortars, carronades, shot, shells, and garrison gun-carriages, cast at the several foundries established in the vicinity of coal and iron mines, whereby the work is done at a comparatively low expense, and the articles can be conveyed by water to the warren at Woolwich, much under the prices at which they could be cast at the place, to which both the iron and the coals must be transported.

Guns are usually cast from metal brought into the fluid state in a reverberatory furnace, and the moulds are formed of loam or dry sand. Guns cast in loam do not come from the mould with a surface so correctly resembling that of the model as those cast in dry sand, and in order to render the surface correct, and to remedy defects, it was always necessary to subject them to the process of turning. In guns carefully cast in dry sand, the process of turning might be dispensed with, the gun would then be strengthened by the outer skin of metal, which, having cooled more rapidly than the other parts, is the hardest: this outer skin is also less liable to rust than the surface laid bare by turning. The mould of a gun in dry sand, at the same time that it is more accurate, is also sooner made and dried than a loam mould.

It may be proper to state that some experiments are at present being made at Douay, in cannon founding, under the direction of Messrs. Gay Lussac and D'Arcet, which tend to show that the addition of a small proportion of iron into the alloy of brass nearly doubles the force of resistance.

Brass guns are subject to melt at the interior extremity of the touch-hole, by the heat of quick firing; and the melted parts are driven out by the explosion, so as to render the touch-hole too wide. To prevent this, there is sometimes a bush of copper inserted, and in this bush the touch-hole is drilled. The copper, being less fusible than the brass, is not melted by the heat of firing the piece. To form the bush, a cylindrical piece of copper is hammered cold, and made into the form of a male screw. A hole is then bored, reaching from the surface of the gun into its bore; the diameter of this cylindrical hole is equal to the diameter of the cylinder of copper measured from the bottom of the threads of the screw. The piece of copper is then screwed into the cylindrical hole, and the touch-hole is drilled in it.

Cannon were formerly made of a very great length, which rendered them exceedingly heavy, and the use of them very limited and troublesome. There were some of them employed by the Turks, in 1394, at the siege of Constantinople, then in possession of the Christians, and also in 1452, which threw a weight of 100 lbs.; but they could not stand repeated firing. Louis XII. had one cast at Tours of the same size, that threw a ball from the bastile to Charenton. One of these extraordinary cannon was taken at the siege of Diu in 1546, by Don John de Castro, and is now in the castle of St. Julian de Barra, ten miles from Lisbon. The length of it is twenty feet seven inches; its diameter at the middle is six feet three inches; and it threw 100 lbs. weight. It has neither dolphins, rings, nor a button; is of an unusual kind of metal, and has an inscription on it, which says that it was cast in 1400. Formerly strange and uncommon names were given to cannon. Thus Louis XII., in 1503, had twelve brass cannon, cast of an extraordinary size, called after the twelve peers of France. The Spaniards and Portuguese named theirs after their saints. The emperor Charles V., when he went against Tunis, had twelve cannon founded, which he called the Twelve Apostles. At Milan there is a seventy-pounder called the Pimontelli; and there is one at Bois-le-duc called the Devil. At Dover castle there is a sixty-pounder called Queen Elizabeth's pocket-pistol. There is an eighty-pounder in the Tower of London, brought thither from Edinburgh castle, called Mountsmeg, and another in the royal arsenal at Berlin, called the Thunderer. The large guns employed by the French at the siege of Cadiz threw shells more than four miles.

A brief tabular view of the dimensions and weight of iron and brass guns may now be given.

Table of the Length, Weight, Caliber, and Charges, of British Government Iron Guns.

	Length.		Weight.			Diameter of the Bore.	Diameter of the Shot.	Diameter of the Shot Gauge.	Charge.	
	Ft.	In.	Cwt.	lb.	oz.	In.	In.	In.	Proof. lb.	Service. lb.
42-Pounder gun	10	0	67	0	0	7·018	6·684	6·795	25·0	14·0
32-Pounder gun	10	0	58	0	0	6·410	6·105	6·207	21·8	10·11
24-Pounder gun	10	0	52	0	0	5·824	5·547	5·639	18·0	8·0
18-Pounder gun	9	6	42	0	0	5·292	5·040	5·124	15·0	6·0
12-Pounder gun	9	6	34	0	0	4·623	4·403	4·476	12·0	4·0
9-Pounder gun	9	6	30	1	0	4·20	4·000	4·066	9·0	3·0
6-Pounder gun	9	0	24	0	0	3·668	3·498	3·552	6·0	2·0
4-Pounder gun	6	0	12	1	0	3·204	3·053	3·104	4·0	1·5
3-Pounder gun	4	6	7	1	0	2·913	2·775	2·820	3·0	1·0
2-Pounder gun	3	9	4	2	0	2·544	2·423	2·463	2·0	0·11
1-Pounder gun	3	0	2	2	0	2·019	1·293	1·955	1·0	0·6
½-Pounder gun	3	0	1	2	0	1·602	1·526	1·551	0·8	0·3

BRASS CANNON.

Nature.	Pounders.	Length.		Weight.			Caliber of the gun.	Diameter of the shot
		ft.	in.	cwt.	qr.	lb.	in.hund	in.hund
Heavy	42	9	6	61	0	0	7·3	6·68
	24	9	6	52	0	0	5·83	5·54
	12	9	0	29	0	0	4·63	4·40
	9	9	0	26	0	0	4·21	4·0
	6	8	0	19	0	0	3·66	3·48
	3	7	0	11	2	0	2·91	2·77
	1½	6	0	5	2	0	2·31	2·2
Medium	24	8	0	42	1	21	5·83	5·54
	12	6	6	21	0	14	4·63	4·40
	6	5	0	10	1	0	3·66	3·48
Light	24	5	6	16	1	12	5·83	5·54
	12	5	0	8	3	18	4·63	4·40
	6	4	6	4	3	14	3·66	3·48
	3	3	6	2	3	4	2·91	2.77

BRASS SHIP GUNS.

Caliber.	Length.		Weight.		
	ft.	in.	cwt.	qr.	lb.
3-Pounder . . .	3	6	5	1	17
6-Pounder . . .	4	4	6	2	14
9-Pounder . . .	5	0	10	0	0
12-Pounder . . .	5	6	13	1	3
18-Pounder . . .	6	4	20	0	0
24-Pounder . . .	7	0	26	2	7
32-Pounder . . .	7	6	35	1	17
36-Pounder . . .	7	10	40	0	0
42-Pounder . . .	8	4	46	2	0
48-Pounder . . .	8	6	53	0	14

We have now to notice a new description of missile weapon, which may properly find a place in this article; we allude to the steam-cannon, suggested by Mr. Perkins. This ingenious American has proposed to employ the elastic force of water converted into steam for the purpose of propelling bullets; and the power of the apparatus must of necessity depend on the intensity of the heat which is employed. A small cannon has already been constructed, which, when connected with the generator or boiler, has been found to discharge ordinary musket-bullets at the rate of 240 in the minute, and with such tremendous force, that, after passing through an inch deal, the ball, in striking against an iron-target, became flattened on one side and squeezed out. The original size of the bullets was 0·65 of an inch; but, after striking the target, they were plano-convex, and their diameter 1·070 inches, and 0·29 of an inch thick.

CAN'NOT. A word compounded of can and not: noting inability.

Sir! seyd the burgeyse, no mevelle it is to me,
For many a time and oft, I *cannot* sey how lome,
He hath be in your marches; and as I trow in Room
Also he was ybore, yf I ne ly shall.
Chaucer's Canterbury Tales.

And you, most noble Lord: that can and dare
Redresse the wrong of miserable wight,
Cannot employ your most victorious speare
In better quarrell than defence of right,
And for a lady 'gainst a faithlesse knight. *Spenser.*

Thus though we *cannot* make our sun
Stand still, yet we will make him run. *Marvell.*

I *cannot* but believe many a child can tell twenty, long before he has any idea of infinity at all. *Locke.*

To cities and the court repair,
A fortune *cannot* fail thee there. *Gay.*

Base envy withers at another's joy,
And hates that excellence it *cannot* reach.
Thomson

There is a spur in its half movements, to become
All that the others *cannot*, in such things
As still are free to both, to compensate
For stepdame Nature's avarice at first. *Byron.*

CANNULA, or **CANULA,** in surgery, a tube They are introduced into hollow ulcers, in order to facilitate a discharge of pus or any other substance; or into wounds either accidental or artificial, of the large cavities, as the thorax or abdomen; they are used in the operation of bronchotomy; and, by some, after cutting for the stone, as a drain for urine. Other cannulæ are used for introducing cauteries, either actual or potential, in order to guard the parts adjacent from to be cauterised, from that injury. They are of various figures; oval, round, and crooked.

CANO (Alonzo), a statuary, who has been called the Michael Angelo of Spain, was born at Grenada, in 1600. He studied architecture and sculpture from his youth, first under his father, and then at Seville; his first instructions in painting were received from Juan dell Castillo. He was after this made royal architect, king's painter, and instructor to the prince, Don Balthazar Carlos. While enjoying the great celebrity which his talents and attainments deserved, he one evening found his house robbed, and his wife murdered in his absence; an Italian servant having fled. The magistrates, because Cano was of a jealous disposition, seemed now determined to sacrifice him, and he fled to Valencia, but afterwards returned to Madrid; where he endured torture, without criminating himself, and the king restored him to favor. He afterwards embraced an ecclesiastical life, as a protection from prosecution. When the priest, at the hour of his death, held to him a crucifix, he told him to take it away, for it was so badly done he could not bear the sight of such a performance. He died in 1676. See *Cumberland's Anecdotes of Eminent Spanish Painters.*

CANO'A, *n. s.*
CANOE'.
Sp. *canoa.* But the word is said to be originally West Indian; Columbus having found it in use at San Salvador, on his arrival there. A boat made by cutting the trunk of a tree into a hollow vessel.

Others made rafts of wood; others devised the boat of one tree, called the *canoa*, which the Gauls upon the Rhone used in assisting the transportation of Hannibal's army. *Raleigh.*

In a war against Semiramis, they had four thousand monoxyla, or *canoes* of one piece of timber. *Arbuthnot on Coins.*

CANOES are Indian boats, sometimes formed of several pieces of bark put together, but more frequently by the hollowing out the trunk of some tree. The largest are made of the cotton tree; some of them will carry between twenty and thirty hogsheads of sugar or molasses. Some are made to carry sail; and for this purpose are steeped in water till they become pliant; after which their sides are extended, and strong beams placed between them, on which a deck is afterwards laid that serves to support their sides. The other sorts very rarely carry sail, unless when going before the wind; their sails are made of short silk grass or rushes. They are commonly rowed with paddles, which are pieces of light wood somewhat resembling a corn-shovel; and, instead of rowing with it horizontally like an oar, they manage it perpendicularly. The small canoes are very narrow, having only room for one person in breadth, and seven or eight lengthwise. The American Indians, when they are under the necessity of landing to avoid a water-fall, or of crossing the land from one river to another, carry their canoes on their heads, till they arrive at a place where they can launch them again. Some nations have vessels under this name, which differ from these, as the inhabitants of Greenland, &c. The Esquimaux canoe is, however, the only one essentially different; this is formed of ribs of whalebone, from end to end, sewed together with strong muscles, and covered with seal-skins. It is very small and light, and generally contains but one person, who, by fastening his large skin cloak to the sides of the canoe, renders the whole water-tight, so that if overset, he can recover himself with his paddle, without injury. The paddle is ten feet long, and flat at each end; and so expert are the natives in the use of it, that they can keep up with any English ten-oared boat.

CAN'ON, *n.*
CAN'ONESS, *n.*
CANON'ICAL, *adj.*
CANON'ICALLY, *adv.*
CANON'ICALNESS, *n.*
CAN'ONIST, *n.*
CAN'ONIZATION, *n.*
CAN'ONIZE, *v. a.*
CAN'ONRY, *n.*
CAN'ONSHIP, *n.*
Κανων. A rule; a law. The laws made by ecclesiastical councils. The books of Holy Scripture: or the great rule. A dignitary in cathedral churches. *Canons Regular.* Such as are placed in monasteries. *Canons Secular.* Lay canons, who have been, as a mark of honor, admitted into some chapters. Canonical signifies according to the canon, constituting the canon; regular, stated, fixed by ecclesiastical laws. Spiritual, relating to the church. A canonist is a man versed in the ecclesiastical laws; a professor of the canon law. Canonisation is the act of declaring saintship: to canonise is to put into the canon, or rule, for observing festivals; to declare any man a saint.

In poyse and philosophie also he can endite;
Cevile an *canoune*, and al maner lawes,
Seneca and Sydrak, and Salamony's sawys,
And the seven sciences and eke law of armys.
Chaucer's Canterbury Tales.

His books are almost the very *canon* to judge both doctrine and discipline by. *Hooker.*

Public readings there are of books and writings, not *canonical*, whereby the church doth also preach, or openly make known, the doctrine of virtuous conversation. *Id.*

The king, desirous to bring into the house of Lancaster celestial honour, became suitor to pope Julius, to *canonise* king Henry VI. for a saint. *Bacon.*

For deans and *canons*, or prebends of cathedral churches, they were of great use in the church; they were to be of counsel with the bishop for his revenue, and for his government, in causes ecclesiastical. *Id.*

By those hymns all shall approve
Us *canonized* for love. *Donne.*

Religious *canons*, civil laws, are cruel;
Then what should war be? *Shakspeare.*

Seven times in a day do I praise thee, said David: from this definite number some ages of the church took their pattern for their *canonical* hours. *Taylor.*

It is a known story of the friar, who on a fasting day, bid his capon be carp, and then very *canonically* eat it. *Government of the Tongue.*

A *canon!* that's a place too mean
No, doctor, you shall be a dean;
Two dozen *canons* round your stalls,
And you the tyrant o'er them all. *Swift.*

Canon law, is that law, which is made and ordained in a general council, or provincial synod, of the church. *Ayliffe.*

York anciently had a metropolitan jurisdiction over all the bishops of Scotland, from whom they had their consecration, and to whom they swore *canonical* obedience. *Id.*

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ce. *Id.*

Canon also denotes those books of Scripture, which are received as inspired and canonical, to distinguish them from either profane, apocryphal, or disputed books. Thus we say, that *Genesis* is part of the sacred *canon* of the Scripture. *Id.*

There are, in popish countries, women they call secular *canonesses*, living after the example of secular canons. *Id.*

These were looked on as lapsed persons, and great severities of penance were prescribed them by the *canons* of Ancyra. *Stillingfleet.*

It is very suspicious, that the interests of particular families, or churches, have too great a sway in *canonisations*. *Addison.*

John Fisher, bishop of Rochester, when the king would have translated him from that poor bishoprick, he refused, saying, he would not forsake his poor little old wife; thinking of the fifteenth canon of the Nicene council, and that of the *canonists*, *Matrimonium inter episcopum et ecclesiam esse contractum*, &c. *Camden's Remains.*

Of whose strange crimes no *canonist* can tell
In what commandment's large contents they dwell.
Pope.

Canons, in logick, are such as these: every part of a division, singly taken, must contain less than the whole; and a definition must be peculiar and proper to the thing defined. *Watts.*

He [Edward I.] seems to have been the first christian prince that passed a statute of mortmain; and prevented by law the clergy from making new acquisitions of lands, which, by the ecclesiastical *canons*, they were for ever prohibited from alienating.
Hume's History of England.

The *canon* law is a body of Roman ecclesiastical law, relative to such matters as that church either has, or pretends to have, the proper jurisdiction over.
Blackstone's Commentaries.

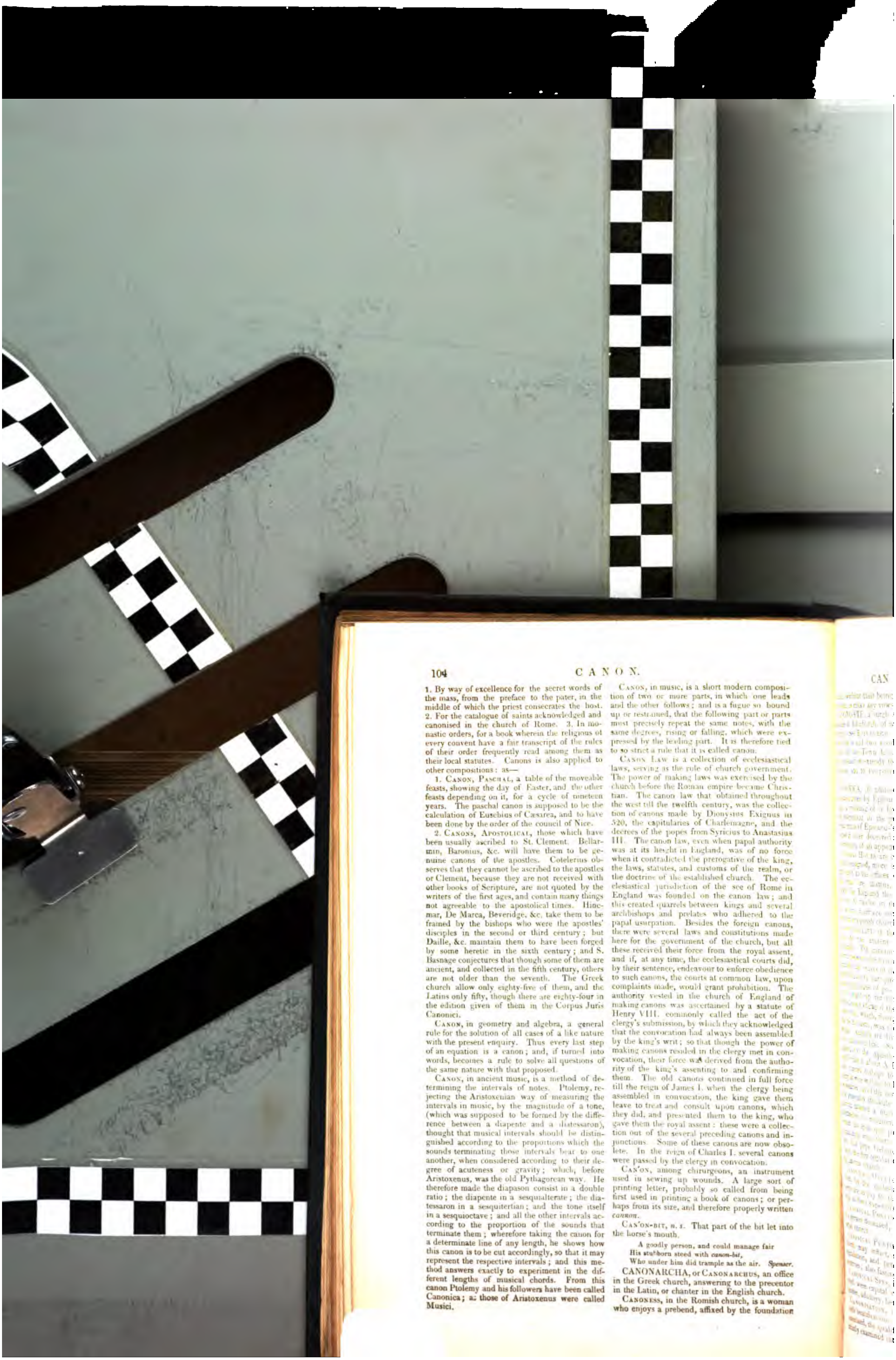
But a word or two;
His stature is twelve cubits: would you so far
Outstep these times, and be a Titan! or
(To talk *canonically*) wax a Son
Of Anak! *Byron.*

Canon, in an ecclesiastical sense, is a rule, either of doctrine or discipline, enacted especially by a council, and confirmed by the sovereign. Canons are properly decisions of matters of religion, or regulations of the policy and discipline of a church, made by councils, either general, national, or provincial. Such are the canons of the council of Nice, or Trent, &c. There have been various collections of the canons of the Eastern councils; but four principal ones, each ampler than the preceding. The first, according to Usher, A. D. 380, contained only those of the first ecumenical council, and the first provincial ones: they were but 164 in number. To these, Dionysius Exiguus, in 520, added the fifty canons of the apostles, and those of the other general councils. The Greek canons in this second collection end with those of the council of Chalcedon; to which are subjoined those of the council of Sardica, and the African councils. The fourth and last collection comes down as low as the second council of Nice; and it is on this that Balsamon and Zonaras have commented.

Canon of Scripture. See Bible.

Canon, in a modern ecclesiastical sense, is a person who possesses a prebend, or revenue allotted for the performance of divine service, in a cathedral, or collegiate church. Canons are of no great antiquity; Pasquier observes that the name was not known before Charlemagne; at least the first we hear of are in Gregory de Tours, who mentions a college of canons instituted by Baldwin XVI. archbishop of that city, in the time of Clotharius I. The common opinion attributes the institution of this order to Chrodegangus bishop of Metz, about the middle of the eighth century. Originally canons were only priests, or inferior ecclesiastics, who lived in community; residing by the cathedral church, to assist the bishop; depending entirely on his will; supported by the revenues of the bishopric, and living in the same house, as his domestics or counsellors, &c. They even inherited his moveables, till A. D. 817, when this was prohibited by the council of Aix-la-Chapelle, and a new rule substituted in the place of that which had been appointed by Chrodegangus, and which was observed for the most part in the west till the twelfth century. By degrees these communities of priests, shaking off their dependence, formed separate bodies, whereof the bishops, however, were still the heads. In the tenth century there were communities of the same kind, established even in cities where there were no bishops; these were called collegiates, as they used the terms congregation and college indifferently; the name chapter now given to these bodies being much more modern. Under the second race of the French kings, the canonical life had spread all over the country; and each cathedral had its chapter distinct from the rest of the clergy. They had the name canon from the Greek **κανων**, which signifies three different things: a rule, a pension, or fixed revenue to live on, and a catalogue of matricula, all which are applicable to them. In time the canons freed themselves from their rules; and at length they ceased to live in community: yet they still formed bodies; pretending to other functions besides the celebration of the common office in the church, yet assuming the rights of the rest of the clergy, making themselves a necessary council of the bishop; taking upon them the administration of a see during a vacancy, and the election of a bishop to supply it. There are even some chapters exempt from the jurisdiction of the bishop, and owning no head but their dean. After the example of cathedral chapters, collegiate ones also continued to form bodies, after they had abandoned living in community. Canons are of various kinds, particularly in the Romish church: as: 1. Canons, cardinal. 2. Canons, domicillary. 3. Canons expectative, &c. 4. Canons, lay or honorary, are such among the laity as have been admitted, out of honor and respect, into some chapter of canons. Dr. Johnson confounds these with the secular canons. 5. Canons, regular, are those who still live in community, and who have, to the practice of their rules, added the solemn profession of vows. They are called regulars, to distinguish them from those secular canons who abandon living in community, and observing the canons made for the maintenance of the ancient discipline.

Canon is also used in the Romish church:



1. By way of excellence for the secret words of the mass, from the preface to the pater, in the middle of which the priest consecrates the host. 2. For the catalogue of saints acknowledged and canonised in the church of Rome. 3. In monastic orders, for a book wherein the religious of every convent have a fair transcript of the rules of their order frequently read among them as their local statutes. Canons is also applied to other compositions: as—

1. Canon, Paschal, a table of the moveable feasts, showing the day of Easter, and the other feasts depending on it, for a cycle of nineteen years. The paschal canon is supposed to be the calculation of Eusebius of Cæsarea, and to have been done by the order of the council of Nice.

2. Canons, Apostolical, those which have been usually ascribed to St. Clement. Bellarmin, Baronius, &c. will have them to be genuine canons of the apostles. Cotelerius observes that they cannot be ascribed to the apostles or Clement, because they are not received with other books of Scripture, are not quoted by the writers of the first ages, and contain many things not agreeable to the apostolical times. Hincmar, De Marca, Beveridge, &c. take them to be framed by the bishops who were the apostles' disciples in the second or third century; but Daille, &c. maintain them to have been forged by some heretic in the sixth century; and S. Basnage conjectures that though some of them are ancient, and collected in the fifth century, others are not older than the seventh. The Greek church allow only eighty-five of them, and the Latins only fifty, though there are eighty-four in the edition given of them in the Corpus Juris Canonici.

Canon, in geometry and algebra, a general rule for the solution of all cases of a like nature with the present enquiry. Thus every last step of an equation is a canon; and, if turned into words, becomes a rule to solve all questions of the same nature with that proposed.

Canon, in ancient music, is a method of determining the intervals of notes. Ptolemy, rejecting the Aristoxenian way of measuring the intervals in music, by the magnitude of a tone, (which was supposed to be formed by the difference between a diapente and a diatessaron), thought that musical intervals should be distinguished according to the proportions which the sounds terminating those intervals bear to one another, when considered according to their degree of acuteness or gravity; which, before Aristoxenus, was the old Pythagorean way. He therefore made the diapason consist in a double ratio; the diapente in a sesquialterate; the diatessaron in a sesquitertian; and the tone itself in a sesquioctave; and all the other intervals according to the proportion of the sounds that terminate them; wherefore taking the canon for a determinate line of any length, he shows how this canon is to be cut accordingly, so that it may represent the respective intervals; and this method answers exactly to experiment in the different lengths of musical chords. From this canon Ptolemy and his followers have been called Canonica; as those of Aristoxenus were called Musici.

Canon, in music, is a short modern composition of two or more parts, in which one leads and the other follows; and is a fugue so bound up or restrained, that the following part or parts must precisely repeat the same notes, with the same degrees, rising or falling, which were expressed by the leading part. It is therefore tied to so strict a rule that it is called canon.

Canon Law is a collection of ecclesiastical laws, serving as the rule of church government. The power of making laws was exercised by the church before the Roman empire became Christian. The canon law that obtained throughout the west till the twelfth century, was the collection of canons made by Dionysius Exiguus in 520, the capitularies of Charlemagne, and the decrees of the popes from Syricius to Anastasius III. The canon law, even when papal authority was at its height in England, was of no force when it contradicted the prerogative of the king, the laws, statutes, and customs of the realm, or the doctrine of the established church. The ecclesiastical jurisdiction of the see of Rome in England was founded on the canon law; and this created quarrels between kings and several archbishops and prelates who adhered to the papal usurpation. Besides the foreign canons, there were several laws and constitutions made here for the government of the church, but all these received their force from the royal assent, and if, at any time, the ecclesiastical courts did, by their sentence, endeavour to enforce obedience to such canons, the courts at common law, upon complaints made, would grant prohibition. The authority vested in the church of England of making canons was ascertained by a statute of Henry VIII. commonly called the act of the clergy's submission, by which they acknowledged that the convocation had always been assembled by the king's writ; so that though the power of making canons resided in the clergy met in convocation, their force was derived from the authority of the king's assenting to and confirming them. The old canons continued in full force till the reign of James I. when the clergy being assembled in convocation, the king gave them leave to treat and consult upon canons, which they did, and presented them to the king, who gave them the royal assent: these were a collection out of the several preceding canons and injunctions. Some of these canons are now obsolete. In the reign of Charles I. several canons were passed by the clergy in convocation.

Can'on, among chirurgeons, an instrument used in sewing up wounds. A large sort of printing letter, probably so called from being first used in printing a book of canons; or perhaps from its size, and therefore properly written *cannon*.

Can'on-bit, *n. s.* That part of the bit let into the horse's mouth.

> A goodly person, and could manage fair
> His stubborn steed with *canon-bit*,
> Who under him did trample as the air. *Spenser.*

CANONARCHA, or Canonarchus, an office in the Greek church, answering to the precentor in the Latin, or chanter in the English church.

Canoness, in the Romish church, is a woman who enjoys a prebend, affixed by the foundation to maids, without their being obliged to renounce the world, or make any vows.

CANONGATE, a burgh adjacent and under vassalage to Edinburgh, of which it is one of the suburbs. See EDINBURGH. It is governed by a baron bailie and two resident magistrates, appointed by the Town Council of Edinburgh. Their jurisdiction extends to the east side of the Pleasance, and to the populous town of North Leith.

CANONICA, in philosophical history, an appellation given by Epicurus to his doctrine of logic, as consisting of a few rules for directing the understanding in the pursuit of truth. The great principle of Epicurus's canonica is, that the senses are never deceived; and therefore that every sensation of an appearance is true.

CANONICAL HOURS are certain stated times of the day, consigned, more especially by the Romish church, to the offices of prayer and devotion. Such are matins, lauds, sixth, ninth, vespers. In England the canonical hours are from eight to twelve in the forenoon, before or after which, marriage cannot be legally performed in any parish church.

CANONICAL LIFE is the rule of living prescribed by the ancient clergy who lived in community. The canonical life was a kind of medium between the monastic and clerical lives. Originally the orders of monks and clerks were entirely distinct; but pious persons afterwards instituted colleges of priests and canons, where clerks brought up for the ministry, as well as others already engaged therein, might live under a fixed rule, which, though somewhat more easy than the monastic, was more restrained than the secular. Authors are divided about the founder of the canonical life. Some will have it to be founded by the apostles, others ascribe it to pope Urban I. about A.D. 1230, who is said to have ordered bishops to provide such of their clergy as were willing to live in community, with necessaries out of the revenues of their churches. The generality attribute it to St. Augustin, who, having gathered a number of clerks to devote themselves to religion, instituted a monastery within his episcopal palace, where he lived in community with them. Onuphrius Panvinius says that pope Gelasius I. about A. D. 495, placed the first regular canons of St. Augustin in the Lateran church.

CANONICAL OBEDIENCE is that submission which, by the ecclesiastical laws, the inferior clergy are to pay to their bishops, and the religious to their superiors.

CANONICAL PORTION, so much of the effects of a person deceased, as the canons allow to his parish church.

CANONICAL PUNISHMENTS are those which the church may inflict, such as excommunication, degradation, and penance, in Roman Catholic countries; also fasting, alms, whipping, &c.

CANONICAL SINS, in the ancient church, those which were capital or mortal, such as idolatry, murder, adultery, heresy, and schism.

CANONISATION, in the Romish church, succeeds beatification. Before a beatified person is canonised, the qualifications of the candidate are strictly examined into, in some consistories held for that purpose; after which, one of the consistorial advocates, in the presence of the pope and cardinals, makes the panegyric of the person who is to be proclaimed a saint, and gives a particular detail of his life and miracles: which done, the holy father decrees his canonisation, and appoints the day. On the day of canonisation the pope officiates in white, and the cardinals are dressed in the same color. St. Peter's church is hung with rich tapestry, upon which the arms of the pope, and of the prince or state requiring the canonisation, are embroidered in gold and silver. The following rule is now observed, though it has not been in force above a century, viz. not to enter into the enquiries prior to canonisation till fifty years, at least, after the death of the person to be canonised. This rite of the modern Romans resembles the deification of the ancient Romans, and, in all probability, takes its rise from it.

CANOPUS, in astronomy, a star of the first magnitude in the rudder of Argo.

CANOPUS, in Pagan mythology, one of the deities of the ancient Egyptians, and the god of water. It is said, that the Chaldeans, who worshipped fire, carried their deity through other countries to try its power, in order that, if it obtained the victory over the other gods, it might be acknowledged as the true object of worship; and it having easily subdued the gods of wood, stone, brass, silver, and gold, its priests declared that all gods did it homage. This the priests of Canopus hearing, and finding that the Chaldeans had brought their gods to contend with Canopus, they took a large earthen vessel, in which they bored several holes, which they afterwards stopped with wax, and having filled the vessel with water, painted it of several colors, and fitting the head of their idol to it, brought it out, in order to contend with the Chaldean deity. The Chaldeans accordingly kindled their fire all around it; but the heat having melted the wax, the water gushed out through the holes and extinguished the fire; and thus Canopus conquered the god of the Chaldeans. Canopus, according to Strabo, was a native of Amycla, had been Menelaus's pilot, and had a temple erected to him in the town of Canopus. It is mentioned by Dionysius. Vossius remarks the vanity of the Greeks, who, as he conjectures, hearing of the Egyptian deity, took an opportunity of deifying the pilot of Menelaus, and giving out that the Egyptian god Canopus had been a Greek.

CANOPUS, in ancient geography, a city of Lower Egypt, on the Mediterranean, near one of the mouths of the Nile, 120 stadia or thirteen miles east of Alexandria: as old as the war of Troy, Canopus being there buried. See ABOUKIR.

CAN'OPY, *v. a.* & *n.* } The noun is from
CAN'OPIED. } κωνωπεῖον barbarous;

Lat. *canopium*; Fr. *canopée*; a covering of state over a throne, or bed; anything spread above the head. The Canopy of Heaven is the concave limit of our vision, beyond which the eye cannot penetrate: when studded with stars at night, it is like a dark mantle bespangled with gems, and is the canopy under which we walk, or repose.

She is there brought unto a paled green,
And placed under a stately *canopy*,
The warlike feats of both those knights to see.
Faerie Queene.

I have of late (but wherefore I know not) lost all my mirth—Indeed it goes so heavily with my disposition, that this goodly frame, the earth, seems to me a steril promontory; this most excellent *canopy*, the air, look you, this brave o'erhanging firmament, this majestic roof, fretted with golden fires, why it appears no other to me than a foul and pestilent congregation of vapours. *Shakspeare.*

I sat me down to watch upon a bank
With ivy *canopied*, and interwove
With flaunting honeysuckle, and began,
Wrapt in a pleasing fit of melancholy,
To meditate my rural minstrelsy,
Till fancy had her fill. *Milton's Comus.*

Now spread the night her spangled *canopy*,
And summoned every restless eye to sleep. *Fairfax.*

The birch, the myrtle, and the bay,
Like friends did all embrace;
And their large branches did display
To *canopy* the place. *Dryden.*

CANOPY formed from κωνωπεῖον, a mosquito net, of κώνωψ, a gnat. Canopies are also borne over the head in processions of state, after the manner of umbrellas. The canopy of an altar is called Ciborium. The Roman grandees had their canopies, or spread veils, called thensæ, over their chairs; and in temples over the statues of the gods. The modern cardinals still retain the use of canopies.

CANOROUS, *adj.* Lat. *canorus.* Musical; tuneful.

Birds that are most *canorous*, and whose notes we most commend, are of little throats, and short.
Browne's Vulgar Errours.

CANOSA, a town of Puglia, Naples, occupy
ing part of the site of the ancient Canusium
The old city was one of the most considerabl
this part of Italy, for extent, population,
magnificent buildings. The æra of Trajan
to have been that of its greatest splendo
this pomp only served to mark it as a ca
ject for the avarice and fury of the B
Genseric, Totila, and Autharis, trea
extreme cruelty. The deplorable sta
this province was reduced in 590 is
strongly painted by Gregory the
every side,' said he, 'we hear groa
side we behold crowds of mourne
castles rased to the ground, con
provinces become deserts,
away captives, and others inh
No town in Puglia suffered m
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Normans increased the mi
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CANOVA (Anto
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Trevisan, in the V

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he was twelve years old, by modelling
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seigneur of the village. Struck wit
which was displayed in this fragile
Falieri took him under his protecti
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[illegible]

guage which may be distinguished by the name of *cant*. *Spectator.*

Of all the *cants* which are canted in this canting world, though the *cant* of hypocrites may be the worst, the *cant* of criticism is the most tormenting. *Sterne.*

I want a hero : an uncommon want,
When every year and month sends forth a new one;
Till, after cloying the gazettes with *cant*,
The age discovers he is not the true one.
Byron. Don Juan.

The primum mobile of England is *cant*. *Id.*

CANT, *s.* } CAN'TER, *s.* } A side, an edge; Goth. and Swed. *kant*; the gallop of an ambling horse, in which one side moves before the other; called ludicrously, says Thomson, a Canterbury gallop; because Kent and Canterbury are also from cant, a side. Johnson gives another reason. The hand gallop of an ambling horse, commonly called a canter; said to be derived from the monks riding to Canterbury on easy ambling horses.

CANT', *n.* } CAN'TLE, *n.* & *v.* } CANTI'LEVERS, } CAN'TICLE, } CANT'LET. } From *canto*, which signifies a piece, section, square, or angle. Fr. *chantel*, *chanteau*, a small piece, or fragment. To cantle, is to cut in pieces; to project in small angles. Cantilevers are small pieces of wood to support the eaves of a house. A cantle is a piece with corners. Cantlet is the diminutive; a small piece or fragment. Cant is supposed to mean a niche in the following passage of Ben Jonson:

The first and principal person in the temple was Irene, or Peace; she was placed aloft in a *cant*. *Ben Jonson.*

In this sense it is also used by Decker:

Directly under her, in a *cant* by herself, was Areta enthroned. *Decker.*

Canticle is a section, or a piece; but usually applied to a song; it is thus used in Scripture.

For nature hath not taken his beginning
Of no partie, ne *cantel*, of a thing,—
But of a thing that parfit is and stable.
Descending so till it be corrumpable.
Chaucer's Canterbury Tales.

See how this river comes me crankling in,
And cuts me from the best of all my land
A huge half-moon, a monstrous *cantle* out.
Shakspeare. Henry IV.

Nor shield nor armour can their force oppose;
Huge *cantlets* of his buckler strew the ground,
And no defence in his bored arms is found. *Dryden.*
For four times talking, if one piece thou take,
That must be *cantled*, and the judge go snack.
Dryden's Juvenal.

CANTABRIA, a district of Tarraconensis, on the Oceanus Cantabricus, now called Biscay. Dr. Wallis makes the Cantabrian the ancient language of all Spain; which, according to him, like the Gaulish, gave way to a kind of broken Latin, called romance or romanshe; which by degrees was refined into the Castilian, or present Spanish. The Cantabrians were famous anciently for their warlike character. In conjunction with the Asturians, they carried on a long war with the Romans; but were subdued by them about A. A. C. 25. Impatient, however, of a reign yoke, they soon revolted. Most of their youth had been taken prisoners by the Romans, and sold for slaves to the neighbouring nations; but, having found means to break their chains, they cut the throats of their masters; and, returning to their own country, attacked the Roman garrisons with incredible fury. As the Cantabrians had waged war with the Romans for upwards of 200 years, they were well acquainted with their manner of fighting, no way inferior to them in courage, and were now become desperate; knowing that if they were conquered, after having so often attempted to recover their liberty, they must expect the most severe usage. Animated with this reflection, they fell upon the Romans with a fury hardly to be imagined, routed them in several engagements, and defended themselves, when attacked, with such intrepidity, that Agrippa afterwards owned that he had never, either by sea or land, been engaged in a more dangerous enterprise. But, having at last prevailed upon his forces to try the chance of an engagement in the open field, he so animated them by his example, that after a most obstinate dispute, he gained a complete victory, which put an end to that destructive war. All the Cantabrians fit to bear arms were cut in pieces; their castles and strong holds taken and rased; and their women, children and old men (none else being left alive) were obliged to abandon the mountainous places, and settle in the plain.

CANTABRICUS OCEANUS, the ancient name of the Bay of Biscay.

CANTABRUM, in antiquity, a large flag used by the Roman emperors, distinguished by its peculiar color, and bearing some motto of good omen, to encourage the soldiers.

CANTACUZENUS (Johannes), emperor of Constantinople, and an historian, was born in Constantinople, of a noble family. He was bred to letters and to arms, and admitted to the highest offices of the state. The emperor Andronicus loaded him with wealth and honors; made him generalissimo of his forces; and desired him to join him in the government, but this he refused. Andronicus dying in 1341, left to Cantacuzenus the care of the empire, till John Paleologus, then only nine years of age, should be fit to take it upon himself. This trust he faithfully discharged; till the empress dowager and her faction forming a party against him, declared him a traitor. On this, the principal nobility and the army besought him to ascend the throne; and accordingly he was crowned, 21st May, 1342. This was followed by a civil war, which lasted five years: when he had John admitted a partner with him in the empire, and their union was confirmed by his giving him his daughter in marriage. Suspicions and enmities, however, soon arising, the war broke out again, and Cantacuzenus, unwilling to continue the effusion of blood, abdicated his share of the empire; and, retiring to a monastery, took the habit of a monk and the name of Joasaphas. In this retirement, he lived till 1411, when he was upwards of 100 years of age. Here he wrote a history of his own times, a Latin translation of which, from the Greek MS. was published by Pontanus at Ingolstadt, in 1603; and a splendid edition was prin-

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ted at Paris, in 1645, in three volumes folio, of the original Greek, and Pontanus's Latin version. He also wrote an apology for the Christian religion against that of Mahomet, under the name of Christodulus.

CANTA, a province and town of Peru, situated in the Cordillera, and supporting immense herds of cattle, sheep, and wild goats. The sheep is of the cama species. The town of Canta stands in lat. 11° 10′ south.

CANTAL, a chain of mountains in upper Auvergne, France, the highest peak in which (called the Plomb de Cantal) is said to be 5918 feet above the level of the sea. They give name to the following department, through the centre of which they run.

Cantal, an interior department in the south of France, part of the late province of Auvergne; it is now divided into four arrondissements, twenty-three cantons, and 272 communes; it is in the diocese of St. Flour, and royal jurisdiction of Riom, its area is 1,124,802 arpents. It is a hilly country producing some wine; and is a grazing rather than an arable district. It has manufactures of linen, leather, and paper; and contains some antimony and other minerals The river Dordogne rises in the north part of the department, and the Tuyere, a branch of the Lot in the south. Population in 1825, 552,100; Aurillac, the chief town, is 108 French leagues or 258 English miles due south of Paris. Mauriac, Murat, and St. Flour, are the chief towns of the other three arrondissements.

CANTARINI (Simon), a famous painter, ro, was the disciple of Guido; and copied the manner of his master so exactly, that it is often difficult to distinguish their works. He died at Verona in 1648.

Cantata, in music, is a composition, first used in Italy, intermixed with recitatives, airs, and different movements, chiefly intended for a single voice, with a thorough bass, though sometimes for other instruments.

CANTATION, *n. s.* From Lat. *canto.* The act of singing.

CANTEENS, in military language, tin vessels in the form of square bottles, used for carrying water to supply the soldiers in camp. Also a machine made of wood or leather, with compartments for several utensils, generally used by officers.

CANTEMIR (Demetrius), the son of a prince of Moldavia. Disappointed by not succeeding his father in that dignity, held under the Ottoman Porte, he went over with his army to the czar Peter the great, against whom he had been sent by the grand seignior, and signalised himself in the czar's service. He is the author of a Latin history of the origin and decline of the Ottoman empire. He died at his estate in the Ukraine in 1729.

Cantemir (Antiochus), esteemed the founder of the Russian poetry, was the youngest son of Demetrius. Under the professors, whom the czar, Peter, had invited to Petersburgh, he learned mathematics, physic, history, moral philosophy, and polite literature; when he had finished his academic course he printed a Concordance to the Psalms, in the Russian language, and was elected member of the Academy. When but twenty-three years of age, he was nominated minister at the court of Great Britain; and his dexterity in the management of public affairs was as much admired as his taste for science. He had the same reputation in France, whither he went in 1738, in quality of minister plenipotentiary, and soon after was invested with the character of ambassador extraordinary. He died of a dropsy, at Paris, in 1744, aged forty-four years.

CANTERBURY, a city of England, capital of the county of Kent. It is seated on the banks of the river Stour, fifty-five miles east by south of London, on the great high road to Dover, from which it is distant seventeen miles. Canterbury is a place of great antiquity; by the ancient Britons it was dignified by the title of Caerkent, or the City of Kent; and its site was too favorable to escape the enlightened attention of the Romans, by whom it was called Durovernum. Ethelbert, the fifth king of Kent, who began his reign in 568, made it his residence; after the Norman conquest, William Rufus made Canterbury the chief archiepiscopal see of England, and conferred it wholly upon the bishops; but it owes its chief celebrity to the massacre of its bishop Thomas à Becket, on the 29th of December 1170. Some disputes having arisen between the bishop and the king, Henry II., four surveillants of the court, took upon themselves to avenge what they considered an affront offered to the king; for which purpose they proceeded secretly to Canterbury, and murdered the prelate by beating him with clubs, whilst engaged at vespers in the church of St. Benedict (now extinct). Becket was a very imperious man; but there does not appear to have been any thing in his conduct to justify so revengeful an act; and, to the credit of the king, he does not appear to have been a party to it. He dispatched a deputation to the pope to exonerate himself from having participated in so foul a deed, and the pope sent two legates to impose upon him a public penance, in expiation of the crime. The king accordingly proceeded to Canterbury, and when arrived within sight of the city he dismounted from his horse, and walked barefoot to the church, and prostrated himself for a whole day before the shrine of the murdered bishop, who had become canonised as a saint. On the following day he presented his back to the monks, and put scourges into their hands, with which they inflicted a punishment of eighty lashes, after which he received absolution. Henry has been accused of hypocrisy, in submitting to this ceremony. It possibly was so; but the page of history does not fully justify the conclusion. After this event, Canterbury became the grand resort of pilgrims from every part of England, as well as of numbers from various parts of Europe, who contributed to render the shrine of the martyr one of the richest in Christendom; it continued so until Henry VIII. seized all the offerings, which were exceedingly valuable, and appropriated them to his own use. It is still an archiepiscopal see, and its incumbent is primate of all England, taking precedence of all the nobility and great officers of state, not of the royal blood; at the coronation of the sovereigns of England, he places the crown on their head; the king and queen, wherever they may be residing, are regarded as his domestic parishioners; his provincial and sub-dean, chancellor, and chaplain, are all bishops. The cathedral is a noble structure; its building commenced in the reign of Henry II., four or five years after the murder of Becket, but was not finished till the reign of Henry V. It is 514 feet in length from west to east within the walls; the east transept is 154 feet, and the choir 180 feet, the height of the vaulted roof is eighty feet, and of the tower 235 feet; several kings, princes, cardinals, and bishops have been interred here. It formerly contained thirty-eight altars: the shrine of Becket was placed in a chapel dedicated to the Holy Trinity, behind the great altar. This noble edifice suffered greatly during the fanatical reign of Cromwell, who quartered his cavalry within its walls. It was, however, thoroughly repaired after the Restoration. In 1784 an elegant organ was introduced, and in 1788 the floor was new laid with stone; it has a most beautiful window of stained glass, and the whole is now in a fine state of preservation. In addition to the cathedral, to which are attached, beside the archbishop, dean, sub-dean, and chancellor, twelve prebends, six preachers, six minor canons, six substitutes, twelve lay clerks, ten choristers, two masters, fifty scholars, and twelve almsmen; there are fifteen other churches; and within the precincts of the cathedral is the archiepiscopal palace, and a grammar school founded by Henry VIII. Canterbury contains several other public buildings, both ancient and modern; among the former is the guildhall, Christ Church gate, &c.; and among the latter, are a theatre and public assembly rooms; a hill on the outskirts of the city being laid out with terraced walks, and tastefully planted, forming a delightful promenade. It had formerly a considerable manufacture of silk, which has materially declined of late years; and its chief trading importance now consists in its extensive thoroughfare; being the point of conveyance to London from Dover, Deal, Ramsgate, and Margate, the travelling intercourse is very great; it is also the chief place of fashionable resort in the county, and its annual races and periodical assemblies attract numerous visitors. The surrounding country is very fertile, producing great quantities of hops, wheat, and other grain, and its markets on Wednesdays and Saturdays are numerously attended. It has two springs of mineral water within the city, strongly impregnated with sulphur and steel. The corporation consists of a mayor, twelve aldermen, twenty-four common-council-men, four serjeants-at-mace, sheriff, coroner, &c. who hold a court in the guildhall to try civil and criminal cases every Monday, and on Tuesdays for city affairs. It returns two members to parliament. It somewhat declined in population during the twenty years' war, which commenced in 1793, owing to the non-intercourse between London and Paris, between which it is the great thoroughfare. The number of inhabitants in 1801 was 10,498; in 1811 only 10,200; but increased in 1821 to 12,745. It is six miles distant from the south bank of the Thames.

Canterbury, a town of the United States, in Connecticut, agreeably situated in Windham county on the west side of the river Quimaboug, over which there is a wooden bridge. It is nine miles east by south of Windham.

Canterbury Bells. See Campanula.

CANTERUS (William), an eminent linguist and philologer, was born at Utrecht, in 1542. He studied at Louvaine and Paris; and afterwards visited the universities of Germany and Italy. He died at Louvaine in 1575, aged thirty-three. He was master of six languages, besides that of his native country; and wrote several philological and critical works, among which are, Notæ, Scholia, Emendationes, et Explicationes, in Euripidem, Sophoclem, Æschylum, Ciceronem, Propertium, Ausonium, &c. and many translations of Greek authors.

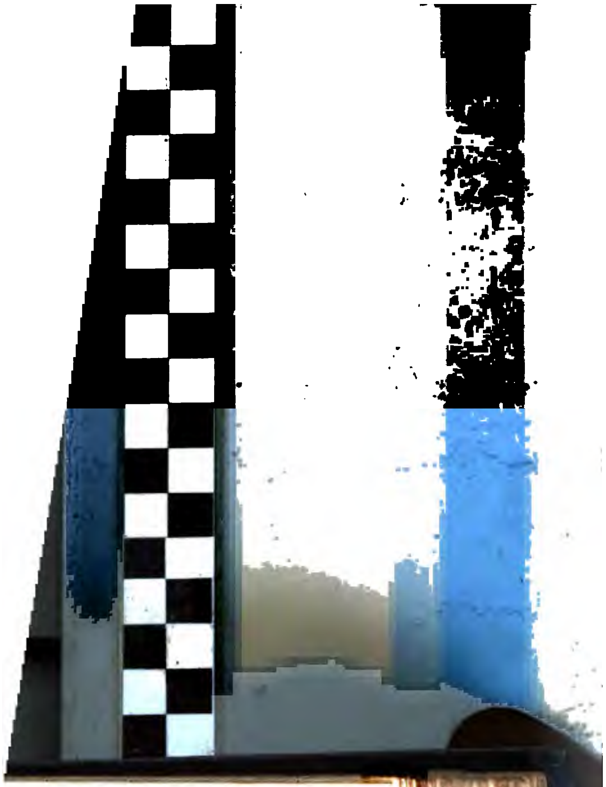
CANTHAR'IDES, *n. s.* Lat. Spanish flies, used to raise blisters.

> The flies *cantharides*, are bred of a worm, or cater pillar, but peculiar to certain fruit trees; as are the fig-tree, the pine-tree, and the wild brier; all which bear sweet fruit, and fruit that hath a kind of secret biting or sharpness; for the fig hath a milk in it that is sweet and corrosive; the pine apple hath a kernel that is strong and abstersive. *Bacon's Natural Hist.*

Cantharides, in medicine and zoology, a kind of poisonous insects, much used as an epispastic. The stimulating power of cantharides is caused by a very acrid resinous substance, contained in these insects, two scruples of which Neumann extracted from four ounces of cantharides by spirit of wine. Cantharides are very sharp and corrosive, abounding with a subtile, caustic, volatile salt; whereby they become exceedingly injurious to the bladder, so as to ulcerate it, even when applied externally, if suffered to lie on too long. They are much commended in fevers, &c. See Medicine.

CANTHARIS, in zoology, a genus of insects of the order coleoptera. The feelers of this genus are setaceous; the breast is marginated, and shorter than the head; the elytra, or wing-cases, are flexile; and the sides of the belly are plated and papillous. This is an extremely rapacious tribe, preying even on its own species, except the lymexylon of Linnæus, which feed on wood. This numerous and extensive genus has been well divided by Gmelin into the three following sections: 1. Those having four feelers of a hatchet shape. 2. Having filiform feelers, with the last joint cetaceous. These are the malachii of Fabricius. 3. Fore-feelers projecting, the last joint but one with a large ovate, cleft appendage; the last joint ovate, acute. The lymexylon of Fabricius. The cantharis is found scattered in all parts of the world, especially in Europe.

CANTHIUM, in botany, a genus of plants of the tetrandria class and monogynia order: cal. four-toothed, superior: cor. one-petalled, with a short inflated tube, and four-parted border, the mouth downy; drupe two-celled, with a one-celled nut in each. Species only one; a Coromandel shrub, with small yellow flowers.



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Rochester and Canterbury, were also Roman towns and stations. Cantium, in the most perfect state of the Roman government, made a part of the province called Flavia Cæsariensis. See KENT.

CANTO; Arab. *kata; κατον, καυτα, κουτο;* Lat. *cento;* Ital. *canto;* a section, a division, part, portion, piece. Thus a division or section of a poem, or a song.

> But evermore my shield did me defend
> Against the storme of every dreadfull stoure:
> Thus safely with my love I thence did wend.
> So ended he his tale, where I this *canto* end. *Spenser.*

> Why, what would you do?——
> —Make a willow cabbin at your gate,
> And call upon my soul within the house;
> Write loyal *cantos* of contemned love.
> *Shakspeare. Twelfth Night.*

> Then should thy shepherd (poorest shepherd) sing
> A thousand *cantos* in thy heavenly praise,
> And rouse his flagging muse, and fluttering wing,
> To chaunt thy wonders in immortal lays.
> *Fletcher's Purple Island.*

> But now the city and the train we leave,
> To seek the duke and make his fortune known;
> And how the rest the dreadful news receive,
> Shall be in the succeeding *cantos* shown. *Gay.*

CANTON, *v. a.* & *n.* } Fr. *canton;* Lat.
CAN'TONIZE, *v. a.* } *centena.* See CANTO.
CAN'TONMENT. } A small parcel or division of land. A small community, or clan. To divide into little parts. To parcel out into small divisions.

The same is the case of rovers by land; such as yet, are some *cantons* in Arabia, and some petty kings of the mountains adjacent to straits and ways. *Bacon's Holy War.*

Thus was all Ireland *cantonised* among ten persons of the English nation. *Davies on Ireland.*

The whole forest was in a manner *cantonised* amongst a very few in number, of whom some had regal rights. *Howel.*

Only that little *canton* of land, called the English pale, containing four small shires, did maintain a bordering war with the Irish, and retain the form of English government. *Davies.*

Families shall quit all subjection to him, and *canton* his empire into less governments for themselves. *Locke.*

It would certainly be for the good of mankind, to have all the mighty empires and monarchies of the world *cantoned* out into petty states and principalities. *Addison on Italy.*

They *canton* out to themselves a little province in the intellectual world, where they fancy the light shines, and all the rest is in darkness. *Watts on the Mind.*

CANTON, a city, sea-port, and capital of Quantong, the most southern province of China, and the only port in that vast empire with which Europeans are permitted to hold any intercourse. It is finely situated on the north bank of a noble river, which, by numerous collateral branches, intersects all the southern part of the empire; one branch is from the north, which, by a portage of only one day's journey, communicates with the great chain of inland waters extending to Pekin, and intersecting every intermediate province, thereby affording a facility of conveyance by water, which renders Canton peculiarly well adapted for the great outport of the empire. The harbour is very commodious, and, being sheltered by several small islands, it affords secure moorings for the innumerable barks and junks which navigate the inland waters; all the foreign ships anchor several miles distant from the town, not on account of the incapacity of the harbour to accommodate them, but from the peculiarly jealous policy of the Chinese, which seems to dread nothing so much as sociality of intercourse. Canton consists of three towns, divided by high walls, but so conjoined as to form almost a regular square. The streets are long and straight, paved with flag-stones, and adorned with triumphal arches. The houses in general have only one floor, built of earth or brick, some of them fantastically colored, and covered with tiles. The better class of people are carried about in chairs; but the common sort walk barefooted and bareheaded. At the end of every street is a barrier, which is shut every evening, as well as the gates of the city. The Europeans and Americans occupy a range of buildings termed the factories, fronting a spacious quay along the bank of the river, without the city, which no foreigner is permitted to enter without the special permission of the viceroy, which is very seldom obtained. The foreign trade of Canton resolves itself into a monopoly more peculiar and oppressive than anywhere else exists; it is vested in twelve persons, precisely on the same principle as the twelve Jews are permitted to act as brokers in the city of London; each paying a large premium for the privilege of trading, or, in other words, as far as the principle applies in China, for the privilege of extorting from, and oppressing the producers of the commodities in which they trade. There is, however, this difference in China: though the whole of the twelve individuals trade on separate accounts, they are collectively amenable, as well to foreigners as to the government, for any default or mulct imposed upon any one or more of them individually; whereas each of the Jew brokers of London is responsible only for his own acts. In addition to the external commerce of Canton, it also appears to be the seat of almost every branch of manufacture, more especially of silks and household gods; the manufacture of the latter, in consequence of there being no public worship in China, and every house having its own collection of idols, forms one of the most important branches of occupation. The main article of export from Canton is Tea, which since 1798, to England alone, has averaged about 25,000,000 of lbs., whilst to America and other parts (since 1815 more especially) it has been gradually increasing, making an aggregate average quantity annually exported at the period of 1826, of about 40,000,000 lbs. The other principal articles exported to England are raw silk and nankeens, of the former about 250,000 lbs. weight, and of the latter, about 600,000 pieces, of four and seven yards each, annually; a few manufactured silks and crapes, porcelain vases, fans, ivory chess-men, fancy boxes, and other toys, soy, and ink, constitute the remaining exports to England, which employ about twenty-five sail of ships annually, of about 1200 tons each; the reimbursement by the English for the above productions is made in cotton wool, opium, and some other articles, from Bombay and Bengal, and in woollen cloths, lead, &c. from England, to the amount of about £700,000 annually. In addition to the trade direct to England, there is also an extensive traffic on English account between the different ports of India and Canton, which consists in a reciprocal interchange of the productions of the respective countries, and in which porcelain and paper form considerable articles of export from Canton. The intercourse of America with Canton, on the part of America, is maintained with furs from the North-west coast, sandal-wood, and the edible birds' nests, collected among the eastern islands, and with dollars; a considerable portion of the tea exported in American ships, being on account and risk of the Chinese merchants, more especially the portion brought to Hamburgh, Antwerp, and other European ports, is wholly reimbursed in specie. The imposts of the government on its external commerce are levied on the length and breadth of the shipping entering and leaving the port. The following statement of the amount of duties returned to the Chinese treasury, for the year 1822, will best show the extent and proportion of the three great branches into which the external commerce of Canton resolves itself: viz. 1st, that with the English East India Company; 2d, that with the different ports of British India; 3d, that with America :—

	On Import.	On Export.
Eng. East Ind. Comp.	395,112	460,042
Country Trade . . .	118,533	80,623
America	276,578	339,409
Total Tale . .	790,223	880,074

The tale being only equal to 6s. 8d. of English money, the whole impost will be seen to amount, according to the above statement, to only £556,800, not equal to the amount levied on the single article of coals alone, at the port of London; and yet such is the extent and insidious nature of the intermediate oppression of the Chinese hong (or council, which is the term by which the twelve privileged merchants of Canton are collectively called) on one side; and the English East India Company on the other; that whilst the 25,000,000 lbs. of tea annually consumed in Great Britain and Ireland, costs the consumer, on an average, at least 7s. per lb., it does not yield to the producer, including the inland conveyance to Canton, an average of 3½d. per lb.

In 1823 several thousand houses in Canton were destroyed by fire, but the ground has since been rebuilt upon. The population has been estimated at about 1,500,000, but more recent accounts imply that the extent of population, not only of Canton, but of China generally, has been greatly exaggerated. See on this head CHINA, and more particularly QUANGTONG. It is in the lat. of 23° 8′ N., and 113° 2′ of E. long., being 16° 47′, or about 1190 British statute miles south by west of Pekin, the metropolis of the empire.

CANTON (John), an ingenious natural philosopher, born at Stroud, in Gloucestershire, in

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ANTON (John), an ingenious natural philo-
er, born at Stroud, in Gloucestershire, in

1718. He was placed, when young, under the care of Mr. Davis, a very able mathematician, and had made some progress in algebra and astronomy, when his father took him from school, and put him to learn his own business, of a broad cloth weaver. This was not able to damp his zeal for knowledge. His leisure was devoted to the cultivation of astronomical science; and, by the help of the Caroline tables annexed to Wing's Astronomy, he computed eclipses of the moon and other phænomena. He also at this time computed and cut upon stone, with no better an instrument than a common knife, the lines of a large upright sun-dial, on which, besides the hour of the day, was shown the rising of the sun, his place in the ecliptic, &c. When this was finished and made known to his father, he permitted it to be placed against the front of his house, where it excited the admiration of several gentlemen in the neighbourhood, which was followed by the offer to this youth of the use of their libraries. In one of these he found Martin's Philosophical Grammar, which was the first book that gave him a taste for natural philosophy. In the possession of another gentleman, a few miles from Stroud, he first saw a pair of globes; an object that afforded him uncommon pleasure, from the great ease with which he could solve those problems he had hitherto been accustomed to compute. Among other persons with whom he became acquainted in early life, was the ingenious Dr. Miles, of Tooting, who, perceiving that Canton possessed abilities too promising to be confined within the narrow limits of a country town, prevailed on his father to permit him to come to London. After having served five years as clerk to Mr. Watkins, of the academy at Spital Square, he was taken into partnership, and succeeded him in the academy, where he continued during life. Towards the end of 1749, he undertook experiments to determine to what height rockets may be made to ascend, and at what distance their light may be seen. In 1750 was read at the Royal Society, his method of making artificial magnets, without the use of, and yet far superior to, any natural ones. This paper procured him the honor of being elected a member of the Society, and the present of their gold medal. The same year he was complimented with the degree of M.A. by the university of Aberdeen; and, in 1751, was chosen one of the council of the Royal Society. In 1752 he was so fortunate as to be the first person in England, who, by attracting the electric fire from the clouds during a thunder-storm, verified Dr. Franklin's hypothesis of the similarity of lightning and electricity. Next year, his paper entitled, Electrical Experiments, with an attempt to account for their several Phenomena, was read to the Royal Society. In the same paper Mr. Canton mentioned his having discovered, by a great number of experiments, that some clouds were in a positive, and some in a negative state of electricity. In the Lady's Dairy for 1756 our author answered the prize question that had been proposed in the preceding year; viz, 'How can what we call the shooting of stars be best accounted for; what is the substance of this phenomenon; and in what state of the atmosphere doth it most frequently show itself?' Our philosopher's next communication to the public was a letter in the Gentleman's Magazine for September, 1759, on the electrical properties of the tourmalin, in which the laws of that wonderful stone are laid down in a very concise and elegant manner. On December 13th, in the same year, was read at the Royal Society, An attempt to account for the regular diurnal variation of the Horizontal Magnetic Needle; and also for its irregular variation at the time of an Aurora Borealis. A complete year's observations of the diurnal variations of the needle are annexed to the paper. On November 5th, 1761, he communicated to the Royal Society an account of the Transit of Venus, June 6th, 1761, observed in Spital Square. His next communication was a letter addressed to Dr. Benjamin Franklin, and read February 4th, 1762, containing some remarks on Mr. Delaval's electrical experiments. On December 16th, 1762, another curious addition was made by him to philosophical knowledge, in a paper, entitled, Experiments to Prove that Water is not Incompressible. These experiments are a complete refutation of the famous Florentine experiment, which so many philosophers have mentioned as a proof of the incompressibility of water. On St. Andrew's day, 1763, he was elected the third time one of the council of the Royal Society; and on November 8th, in the following year, were read, before that learned body, his farther Experiments and Observations on the Compressibility of Water, and some other fluids. The establishment of this fact, in opposition to the received opinion, formed on the hasty decision of the Florentine Academy, was thought to be deserving of the Society's gold medal. It was accordingly moved for in the council of 1764; and after several invidious delays, which terminated much to the honor of Mr. Canton, it was presented to him November, 30th, 1765. His next communication to the Royal Society was on December 22nd, 1768, An easy Method of Making a Phosphorus, that will imbibe and emit light like the Bolognian Stone; with Experiments and Observations. The dean and chapter of St. Paul's having in a letter to the president, dated March 6th, 1769, requested the opinion of the Royal Society relative to the best and most effectual method of fixing electrical conductors to preserve that cathedral from damage by lightning, Mr. Canton was one of the committee appointed to take the letter into consideration, and to report their opinion upon it. The other members were, Dr. Watson, Dr. Franklin, Mr. Delaval; and Mr. Wilson. Their report was made on the 8th of June following; and the mode recommended by them was carried into execution. The last paper of our author's, which was read before the Royal Society, was on December 21st, 1769; and contained Experiments to prove that the Luminousness of the Sea arises from the Putrefaction of its Animal Substances. Besides the above, he wrote a number of papers, which appeared in different publications, particularly the Gentleman's Magazine. He fell into a dropsy, which carried him off, March 22nd, 1772, in the fifty-fourth year of his age.

CANTONING, in the military art, is the allotting distinct and separate quarters to each regiment; the town where they are quartered being divided into as many cantons as there are regiments.

CAN'TRED, *n. s.* The same in Wales as an hundred in England. For cantre, in the British language, signifieth an hundred.

The king regrants to him all that province, reserving only the city of Dublin, and the *cantreds* next adjoining and the maritime towns. *Davies on Ireland.*

CANT-TIMBERS, in ship-building, those timbers which are situated at the two ends of a ship. They derive their name from being canted, or raised obliquely from the keel; in contradistinction from those whose planes are perpendicular to it. The upper ends of those on the bow, or fore part of the ship, are inclined to the stern; as those in the after, or hind part, incline to the stern-post above. See SHIP-BUILDING.

CANTUA, in botany, a genus of plants of the pentandria class, and monogynia order: CAL. five or three cleft: COR. funnel-shaped: STIG. three-cleft: CAPS. three-valved, three-celled, many-seeded: SEEDS winged. Species four; natives of South America.

CAN'TY, *adj.* Goth. *kat*; *kiat*; Swed. *katja*; gay, joyful, wanton; whence, Fr. *catin*, a woman of pleasure.

CANVAS, in commerce, a very clear unbleached cloth of hemp or flax, woven regularly in little squares. It is used for working tapestry with the needle, by passing the threads of gold, silver, silk, or wool, through the intervals of squares. Also a coarse cloth of hemp, unbleached, somewhat clear, which serves to cover women's stays; to stiffen men's clothes, and to make some other of their wearing apparel, &c.

CANVAS, among painters, is the cloth on which they usually draw their pictures; the canvas being smoothed over with a slick-stone, then fixed, and afterwards whited over, makes what the painters call their primed cloth, on which they draw their first sketches with coal or chalk, and afterwards finish with colors.

CANVAS is also used among the French for the model or first words whereon an air or piece of music is composed, and given to a poet to regulate and finish. The canvas of a song contains certain notes of the composer, which show the poet the measure of the verses he is to make.

CAN'VASS, *v. a.* & *n.* } Per. *kanu*; Lat.
CAN'VASSING, } *cannabis*; Fr. *canevas*; Ital. *canavaccio*. Coarse hempen cloth, woven for several uses; as sails, painting cloths, tents. It is also so constructed as to be a sifting cloth, through which the lighter particles pass; but the grosser matter is retained. Thus it is metaphorically applied to sift, to examine; to sifting voices, or trying them, previously to the decisive act of voting: also to debate, to discuss; to separate the truth from error, as the sieve or canvass separates, by the act of straining, the heterogeneous mixtures that may be put into it.

The master commanded forthwith to set on all the *canvass* they could, and fly homeward. *Sidney.*

And eke the pens that did his pinions bind,
Were like main yards with flying *canvass* lin'd.
Spenser.

Eftsoones her shallow ship away did slide,
More swift than swallow sheres the liquid sky,
Withouten oare or pilot it to guide,
Or winged *canvas* with the wind to fly;
Onely she turn'd a pin; and by and by,
It cut away upon the yielding wave. *Spenser.*

There be that can pack cards, and yet cannot play well: so there are some that are good in *canvasses* and factions, that are otherwise weak men. *Bacon.*

Elizabeth being to resolve upon an officer, and being, by some that *canvassed* for others, put in some doubt of that person she meant to advance, said, she was like one with a lanthorn seeking a man. *Id.*

The curs discovered a raw hide in the bottom of a river, and laid their heads together how to come at it: they *canvassed* the matter one way and t'other, and concluded, that the way to get it, was to drink their way to it. *L'Estrange.*

Their *canvass* castles up they quickly rear,
And build a city in a hour's space. *Fairfax.*

Where'er thy navy spreads her *canvass* wings,
Homage to thee, and peace to all, she brings. *Waller.*

Spread a large *canvass*, painter, to contain
The great assembly and the numerous train. *Marvell.*

This crime of *canvassing*, or soliciting, for church preferment, is, by the canon law, called simony.
Ayliffe's Parergon.

Thou, Kneller, long with noble pride,
The foremost of thy art hast vied
With nature in a generous strife,
And touch'd the *canvass* into life. *Addison.*

So when a general bids the martial train
Spread their encampment o'er the spacious plain;
Thick rising tents a *canvass* city build,
And the loud dice resound thro' all the field. *Gay.*

Happy the maid, who, from green sickness free,
In *canvass* or in Holland pocket bears
A crooked sixpence. *Bramston.*

Then towered the masts; the *canvass* swelled on high;
And waving streamers floated in the sky.
Falconer's Shipwreck.

CANULA. See CANNULA.

CANUSIUM, in ancient geography, a town of Apulia, on the south side of the Aufidus, west of Cannæ; whither the Romans fled after the defeat sustained there. It was founded by Diomede, and afterwards became a Roman colony. It was famous for its red shining wool; whence those who wore clothes made of it were called Canusinati. It is now called CANOSA; which see.

CANUTE, the first Danish king of England. He married Emma, widow of king Ethelred, and put to death several persons of quality who stood in his way to the crown. Having thus settled his power in England, he made a voyage to his kingdom of Denmark, in order to resist the attacks of the king of Sweden; and carried along with him a great body of the English, under the command of Earl Godwin. This nobleman was stationed next the Swedish camp; and observing a favourable opportunity, he attacked the enemy in the night, drove them from their trenches, and obtained a decisive victory. In another voyage which he afterwards made to Denmark, Canute attacked Norway, and expelled the just but unwarlike Olaus from his kingdom, of which he

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kept possession till the death of that prince. By a spirit of devotion, no less than by his equitable administration, he gained in a great measure the affections of his subjects. Some of his flatterers breaking out one day in admiration of his grandeur, exclaimed, that every thing was possible for him: upon which the monarch, it is said, ordered a chair to be set on the sea shore while the tide was making; and, as the waters approached, he commanded them to retire, and to obey the voice of him who was lord of the ocean. He feigned to sit some time in expectation of their submission; but when the sea still advanced towards him, and began to wash him with its billows, he turned to his courtiers, and remarked to them, that every creature in the universe was feeble and impotent, and that power resided with one Being alone, in whose hands were all the elements of nature, who could say to the ocean, 'thus far shalt thou go, and no farther,' and who could level with his nod the most towering piles of human pride and ambition. From this time, it is said, he never would wear a crown. He died in the twentieth year of his reign; andwas interred at Winchester.

CANZONE, in music, signifies, in general, a song, where some little fugues are introduced: but it is sometimes used for a sort of Italian poem, usually long, to which music may be composed in the style of a cantata. If this term be added to a piece of instrumental music, it signifies much the same as cantata: if placed in any part of a sonata, it implies the same meaning as allegro, and only denotes that the part to which it is prefixed is to be played or sung in a brisk and lively manner.

CAN'ZONET, *n. s.* Ital. *canzonetta.* A little song.

Vecchi was most pleasing of all others, for his conceit and variety, as well his madrigals as *canzonets.*
Peacham.

CAOUTCHOUC, or Indian rubber, an elastic gum, produced from the jatropha elastica and other plants of South America, and possessed of the most singular properties. No substance is yet known which is so pliable, and at the same time so elastic; and it is capable of resisting the action of very powerful menstrua. The Indians make boots of it, which water cannot penetrate, and which, when smoked, have the appearance of real leather; bottles are also made of it. Flambeaux, an inch and a half in diameter, and two feet long, are likewise made of this resin, they give a beautiful light, have no bad smell, and burn twelve hours. A kind of cloth is also prepared from it, which the inhabitants of Quito apply to the same purposes as our oil-cloth and sail-cloth. It is formed by moulds into a variety of figures for use and ornament. The great Frederick king of Prussia had a pair of boots made of caoutchouc. A mould of wrought clay, the exact figure of his leg, was covered with ethereal solution of caoutchouc, laid on in alternate layers by a brush, until it acquired the proper thickness; the whole was then held over a strong smoke of burning vegetables, to harden into the texture and appearance of leather. When the whole was thus prepared the inside mould was broken and taken out. To form this resin into small tubes, M. Macquer prepared a solid cylindrical mould of wax, of the desired size and shape, and then, dipping a pencil into the ethereal solution of the resin, coated the mould over with it, till he had covered it with a coat of resin of a sufficient thickness. He then threw the whole piece into boiling water; by the heat of which the wax soon melted, and rising to the surface left the resinous tube completely formed. Mr. Macintosh has a patent for cloth rendered water-proof with a solution of caoutchouc. If linseed oil be rendered very drying by digesting it upon an oxide of lead, and afterwards applied with a small brush on any surface, and dried by the sun or in the smoke, it makes an artificial caoutchouc, and it will afford a pellicle of considerable firmness, transparent, burning like caoutchouc, and wonderfully elastic. A pound of this oil, spread upon a stone, and exposed to the air for six or seven months, acquires almost all the other properties of caoutchouc: it is used to make catheters and bougies, to varnish balloons, and for other purposes. It will also answer the same end in rubbing out pencil marks.

CAP, *n.* & *v. a.* Welsh *cap*; Sax. cæppe; Germ. *cappe*; Fr. *cappe*; Ital. *cappa*; Span. *cappa*; Dan. and Dutch *kappe*; Lat. *caput*; a head. A covering for the head, that which is usually worn; and a vessel, used by divers, to protect the head, and secure free respiration, when under water. Anything that covers the top, or that which is topmost and highest. It is technically applied to a piece of lead, laid over the touch-hole of a gun, to preserve the prime. The cap of maintenance is one of the regalia, carried before the king at his coronation. To cap, is to cover the head; to make a reverence by uncovering it. To protect that by covering, which exposure would injure or weaken. It also signifies to contend, from Goth. and Swed. *kapp*; Sax. camp, to contest; see *To* COPE. Thus it has been applied to striving for the mastery, and to rival conflicts, whether personal, literary, or skilful, for superiority. To cap verses is to name, alternately, verses beginning with a particular letter; to name in opposition to emulation; to name, alternately, in contest. To cap, is likewise to deprive of the cap; to take it by force or fraud. Shakspeare uses the noun in the same sense in which we now apply the term hat as the ensign of the cardinalate.

For I wol tell a legend and a lif
Both of a carpenter and of his wif,
How that a clerk hath the wrighte's *cappe.*
Chaucer's Canterbury Tales.

If one, by another occasion, take any thing from another, as boys sometimes use to *cap* one another, the same is straight felony. *Spenser on Ireland.*

Here is the *cap* your worship did bespeak.—
—Why, this was moulded on a poringer,
A velvet dish. *Shakspeare. Taming of the Shrew*

I have ever held my *cap* off to thy fortune.—
—Thou hast served me with much faith. *Id.*

Three great ones of the city,
In personal suit to make me his lieutenant,
Oft *capped* to him:—and by the faith of man,
I know my price, I'm worth no worse a place.
Shakspeare. Othello.

They more and less came in with *cap* and knee,
Met him in boroughs, cities, villages. *Id. Henry IV.*

Thou art the *cap* of all the fools alive. *Id. Timon.*

Enicus, king of Sweden, had an inchanted *cap*, by virtue of which, and some magical murmur or whispering terms, he could command spirits, trouble the ayre, and make the wind stand which way he would; insomuch, that when there was any great wind or storm, the common people were wont to say the king now had on his conjuring *cap*. *Burton. Anat. Mel.*

At the court gate met him four noblemen in cloth of gold, and rich fur *caps*, embroidered with pearl and stone. *Milton. Hist. Moscovia.*

The bones next the joint are *capped* with a smooth cartilaginous substance, serving both to strength and motion. *Derham.*

Where Henderson and the other masses,
Were sent *cap* texts, and put cases. *Hudibras.*

Sure it is a pitiful pretence to ingenuity that can be thus kept up, there being little need of any other faculty but memory, to *cap* texts. *Government of the Tongue.*

There is an author of ours, whom I would desire him to read, before he ventures at *capping* characters. *Atterbury.*

First, lolling sloth, in woollen *cap*,
Taking her after dinner nap. *Swift.*

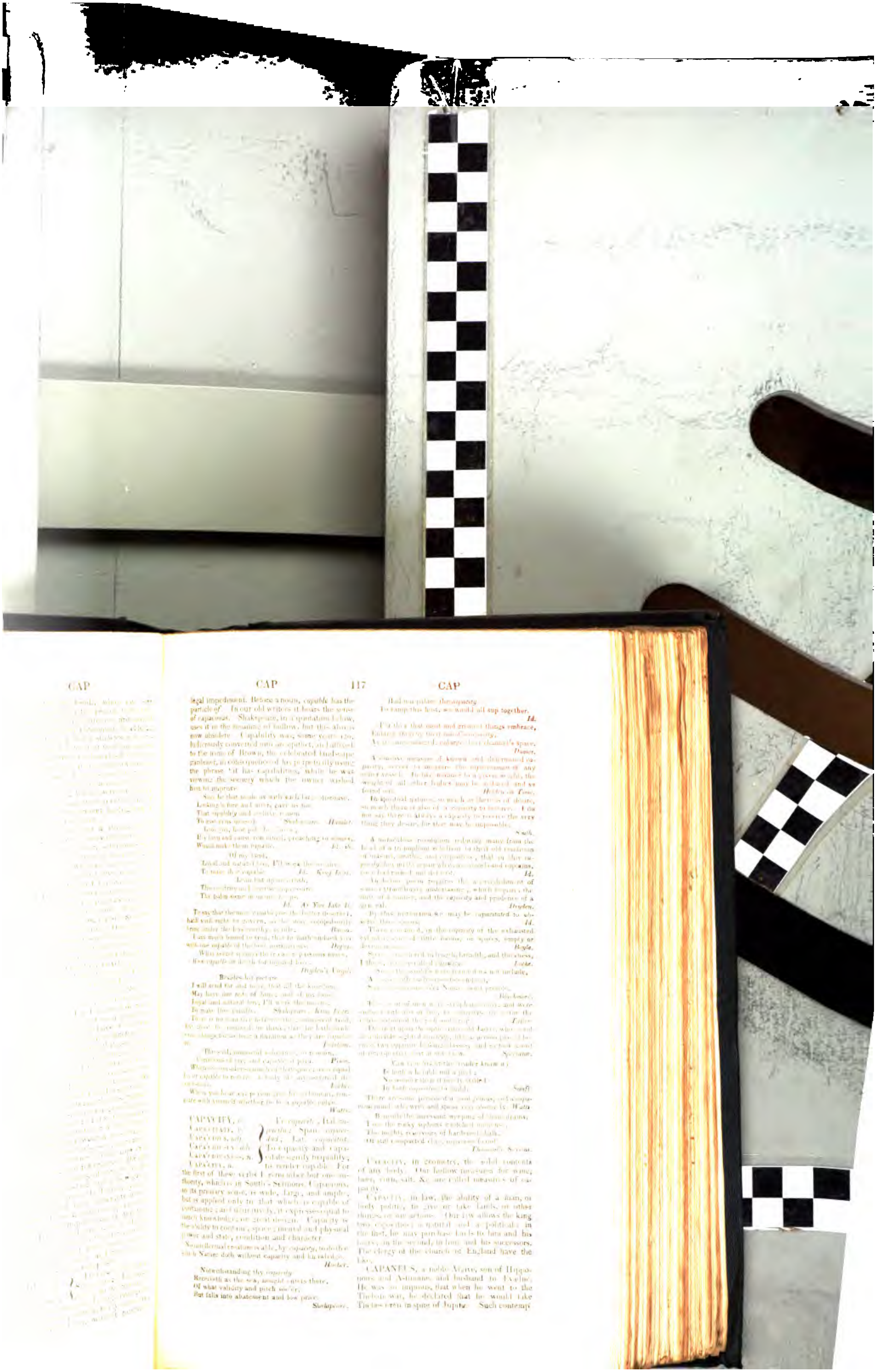
Cap, in ship-building, a strong, thick, block of wood, used to confine two masts together, when one is erected at the head of the other in order to lengthen it. It is furnished with two holes, perpendicular to its length and breadth, and parallel to its thickness: one of these is square and the other round; the former being solidly fixed upon the upper end of the lower mast, whilst the latter receives the mast employed to lengthen it, and secures it in this position. The breadth of all caps is equal to twice the diameter of the top-mast, and the length to twice the breadth. The thickness of the main and fore-caps is half the diameter of their breadths; the mizen-cap three-sevenths, and the top-mast caps two-fifths of their respective breadths.

Caps, Ancient. The Romans were many ages without any regular covering for the head: when either the rain or sun was troublesome, the lappet of the gown was thrown over the head; and hence it is that all the ancient statues appear bare-headed, excepting sometimes a wreath or the like. And the same usage obtained among the Greeks, where, at least during the heroic age, no caps were known. The sort of caps or covers of the head in use among the Romans on divers occasions, were the pitra, pileus, cucullus, galerus, and palliolum; the differences between which are often confounded by ancient as well as modern writers.

The general use of caps and hats is referred to the year 1449, the first seen in these parts of the world being at the entry of Charles VII. into Rouen: from that time they began to take place of chaperoons, or hoods. When the cap was of velvet, they called it mortier; when of wool, simply bonnet. None but kings, princes, and knights, were allowed the use of the mortier. The cap was the head-dress of the clergy and graduates. Pasquier says, that it was anciently a part of the hood worn by the people of the robe; the skirts whereof being cut off as an incumbrance, left the round cap an easy commodious cover for the head; which cap being afterwards assumed by the people, those of the gown changed it for a square one, first invented by a Frenchman, called Patrouillet: he adds, that the giving of the cap to the students in the universities, was to denote, that they had acquired full liberty, and were no longer subject to the rod of their superiors; in imitation of the ancient Romans, who gave a pileus, or cap, to their slaves, in the ceremony of making them free: whence the proverb, Vocare servos ad pileum. Hence, also, on medals, the cap is the symbol of liberty, whom they represent holding a cap in her right hand, by the point.

The French clergy wear a shallow kind of cap, called calotte, which only covers the top of the head, made of leather, satin, worsted, or other stuff. The red cap is a mark of dignity allowed only to those who are raised to the cardinalate. During the first five years of the French revolution, the red cap was a mark of democracy. The secular clergy are distinguished by black leathern caps, the regulars by knit and worsted ones. Churchmen, and members of universities, students in law, physic, &c. as well as graduates, wear square caps. In most universities, doctors are distinguished by peculiar caps, given them on assuming the doctorate. In that of Edinburgh, the principal only touches the young graduate's head with a velvet cap. Wickliffe calls the canons of his time bifurcati, from their caps. Pasquier observes, that in his time, the caps worn by the churchmen, &c. were called square caps; though, in effect, they were round yellow caps. The Chinese have not the use of the hat, like us; but wear a cap of peculiar structure, which the laws of civility will not allow them to put off: it is different for the different seasons of the year: that used in summer is in form of a cone, ending at top in a point. It is made of a very beautiful kind of mat, much valued in that country, and lined with satin; to this is added, at top, a large lock of red silk, which falls all round as low as the bottom; so that, in walking, the silk fluctuating regularly on all sides, makes a graceful appearance; sometimes, instead of silk, they use a kind of bright red hair, the lustre of which no weather effaces. In winter they wear a plush cap, bordered with martlet's or fox's skin; as to the rest, like those for the summer. These caps are frequently sold for eight or ten crowns. The cap is sometimes used as a mark of infamy; in Italy the Jews are distinguished by a yellow cap; at Lucca by an orange one. In France, by the old laws, those who had been bankrupts were obliged ever after to wear a green cap to prevent people from being imposed on in any future commerce. By several arrets, in 1584, 1622, 1628, 1688, it was decreed, that if they were at any time found without their green cap, their protection should be null, and their creditors empowered to cast them into prison.

CA'PABLE, *adj.*
Capabil'ity, *n.*
Ca'pableness, *n.*
} Fr. *capable*; It. *capace*; Span. *capaz*; Lat. *capax*, *capio*; fit to receive, or do; power of receiving, or doing; intelligent; able to understand; intellectually capacious; susceptible; qualified for, without natural or



legal impediment. Before a noun, *capable* has the particle *of*. In our old writers it bears the sense of capacious. Shakspeare, in a quotation below, uses it in the meaning of hollow, but this also is now obsolete. Capability was, some years ago, ludicrously converted into an epithet, and affixed to the name of Brown, the celebrated landscape gardener, in consequence of his perpetually using the phrase 'it has capabilities,' while he was viewing the scenery which the owner wished him to improve.

Sure he that made us with such large discourse,
Looking before and after, gave us not
That *capability* and godlike reason
To rust in us unused. *Shakspeare. Hamlet.*
Look you, how pale he glares;
His form and cause conjoin'd, preaching to stones,
Would make them capable. *Id. ib.*
Of my land,
Loyal and natural boy, I'll work the means
To make thee capable. *Id. King Lear.*
Lean but upon a rush,
The cicatrice and capable impressure
Thy palm some moment keeps.
Id. As You Like It.

To say that the more capable, or the better deserver, hath such right to govern, as he may compulsorily bring under the less worthy, is idle. *Bacon.*

I am much bound to God, that he hath endued you with one capable of the best instructions. *Digby.*

When secret sympathies in a cause of passions move,
Are *capable* of death for injured love.
Dryden's Virgil.

Besides his picture
I will send far and near, that all the kingdom
May have due note of him; and of my land,
Loyal and natural boy, I'll work the means
To make thee capable. *Shakspeare. King Lear.*

There is no man that believes the immortality of the soul, but must be inclined to think, that he hath made some things for as long a duration as they are *capable* of. *Tillotson.*

The soul, immortal substance, to remain,
Conscious of joy, and *capable* of pain. *Prior.*

When we consider so much of that space as is equal to or *capable* to receive a body of any assigned dimensions. *Locke.*

When you hear any person give his judgment, consult with yourself whether he be a *capable* judge. *Watts.*

CAPA'CITY, *n.* ⎫ Fr. *capacité*; Ital. *capacità*; Span. *capacidad*; Lat. *capacitas*. To capacity and capacitate signify to qualify, to render capable. For
CAPA'CITATE, *v.*
CAPA'CIOUS, *adj.*
CAPA'CIOUSLY, *adv.*
CAPA'CIOUSNESS, *n.*
CAPA'CITY, *n.* ⎭

the first of these verbs I remember but one authority, which is in South's Sermons. Capacious, in its primary sense, is wide, large, and ample; but is applied only to that which is capable of containing; and figuratively, it expresses equal to much knowledge, or great design. Capacity is the ability to contain; space; mental and physical power and state, condition and character.

No intellectual creature is able, by *capacity*, to do that which Nature doth without capacity and knowledge. *Hooker.*

Notwithstanding thy *capacity*
Receiveth as the sea, nought enters there,
Of what validity and pitch soe'er,
But falls into abatement and low price.
Shakspeare.

Had our palace the *capacity*
To camp this host, we would all sup together.
Id.

For this, that most and greatest things embrace,
Enlarges thus their mind's capacity,
As streams resolved, enlarge their channel's space.
Davies.

A concave measure of known and determined capacity, serves to measure the capaciousness of any other vessel. In like manner to a given weight, the weight of all other bodies may be reduced and so found out. *Holder on Time.*

In spiritual natures, so much as there is of desire, so much there is also of a capacity to receive. I do not say there is always a capacity to receive the very thing they desire, for that may be impossible.
South.

A miraculous revolution reducing many from the head of a triumphant rebellion to their old condition of masons, smiths, and carpenters, that in that *capacity* they might repair what, as colonels and captains, they had ruined and defaced. *Id.*

An heroic poem requires the accomplishment of some extraordinary undertaking, which requires the duty of a soldier, and the *capacity* and prudence of a general. *Dryden.*

By this instruction we may be *capacitated* to observe those errors. *Id.*

There is no doubt, in the capacity of the exhausted cylinder, store of little rooms, or spaces, empty or devoid of air. *Boyle.*

Space, considered in length, breadth, and thickness, I think, may be called *capacity*. *Locke.*

Since the world's wide frame does not include,
A [illegible],
[illegible] Nature [illegible].
Blackmore.

[illegible] *Felton.*

[illegible] *Spectator.*

Can [illegible] the reader know it;
Is both a herald and a poet;
No wonder then if nicely skill'd
In both *capacities* to build. *Swift.*

There are some persons of a good genius, and a capacious mind, who write and speak very obscurely. *Watts.*

Beneath the incessant weeping of these drains,
I see the rocky siphons stretch'd immense,
The mighty reservoirs of harden'd chalk,
Or stiff compacted clay, capacious found.
Thomson's Seasons.

CAPACITY, in geometry, the solid contents of any body. Our hollow measures for wine, beer, corn, salt, &c. are called measures of capacity.

CAPACITY, in law, the ability of a man, or body politic, to give or take lands, or other things, or sue actions. Our law allows the king two capacities; a natural and a political: in the first, he may purchase lands to him and his heirs; in the second, to him and his successors. The clergy of the church of England have the like.

CAPANEUS, a noble Argive, son of Hipponous and Astinome, and husband to Evadne. He was so impious, that when he went to the Theban war, he declared that he would take Thebes even in spite of Jupiter. Such contempt

provoked the god, who struck him dead with a thunderbolt. His body was burnt separately from the others, and his wife threw herself on the burning pile to mingle her ashes with his. It is said that Æsculapius restored him to life.

CAP-A'-PE', } Fr. *cap-à-pie*. From head
Cap-a'-pie'. } to foot; all over; completely armed.

> A figure like your father,
> Armed at all points, exactly *cap-a-pe*,
> Appears before them, and, with solemn march,
> Goes slow and stately by them.
>
> *Shakspeare. Hamlet.*

> There for the two contending knights he sent,
> Armed *cap-a-pie*, with reverence low they bent.
>
> *Dryden. Fables.*

> A woodlouse,
> That folds up itself in itself for a house,
> As round as a ball, without head, without tail,
> Inclosed *cap-a-pe* in a strong coat of mail. *Swift.*

CAPAR'ISON, *v.* & *n.* Fr. *caparaçon*; Span. *caparazon*; from Lat. *capio* and *paro*. It was formerly spelt caparasson, and signifies, primarily, the bards or trappings of a horse, but is applied ludicrously to any pompous dress. The homely definition given by the Farmer's Dictionary is, 'a horse cloth, or a sort of cover for a horse, which is spread over his furniture.'

> Don't you think, though I am *caparisoned* like a man, I have a doublet and hose in my disposition?
>
> *Shakspeare. As You Like It.*

> Tilting furniture, emblazoned shields,
> Impresses quaint, *caparisons*, and steeds,
> Bases, and tinsel trappings, gorgeous knights
> At joust and tournament. *Paradise Lost.*

> Some wore a breast-plate, and a light juppon,
> Their horses clothed with rich *caparison*.
>
> *Dryden's Fables.*

> The steeds *caparisoned* with purple stand,
> With golden trappings, glorious to behold,
> And champ betwixt their teeth the foaming gold.
>
> *Dryden.*

CAPE, *n.* Fr. *cape*; Ital. *capo*; Dan. *kappe*; Lat. *caput*. A headland, a promontory; also the neck piece of a cloak. Its application from the Latin is quite obvious in the first case, and not obscure in the second; the cape being, as Minsheu observes, the superior part of the garment. In the northern languages, it is not from the whole head, but from the nose, that the designation of a promontory is derived; and from them many headlands both on the French and English coasts received names, as in Dungeness, Cape Grisnez, &c.

> What from the *cape* can you discern at sea?
> Nothing at all; it is a high wrought flood.
>
> *Shakspeare. Othello.*

> The parting sun,
> Beyond the earth's green *cape* and verdant isles,
> Hesperian sets, my signal to depart.
>
> *Paradise Lost.*

> The Romans made war upon the Tarentines, and obliged them by treaty not to sail beyond the *cape*.
>
> *Arbuthnot.*

> But now Athenian mountains they descry,
> And o'er the surge Colonna frowns on high.
> Beside the *cape's* protecting verge is placed
> A range of columns, long by time defaced.
>
> *Falconer.*

> He was cloathed in a robe of fine black cloth, with wide sleeves and *cape*. *Bacon.*

Cape, in law, a judicial writ concerning plea of lands or tenements, and divided into cape magnum and cape parvum, both of which affect things immovable.

Cape magnum is designed to lie where a person has brought a præcipe quod reddat of a thing that touches a plea of land, and the tenant makes default at the day given to him in the original writ; then this writ shall go for the king, to take the land into his hands: and if he comes not at the day given him, he loses his land, &c.

Cape parvum, called petit-cape, is defined thus: when the tenant is summoned in plea of land, and cometh at the summons, and his appearance is recorded; and after he maketh default at the day that is given to him, then this writ shall go for the king.

Cape Coast Castle. See Africa and Ashantee.

Cape de Verd Islands. See Verde, Cape de.

Cape of Good Hope. The colony of the Cape of Good Hope, stretches along the whole of the southern extremity of Africa from the cape of that name (originally called Cabo dos Tormentos, the Cape of Storms, by the Portuguese) to the Great Fish river, the Rio d' Infante of the Portuguese, or from 17° 36' to 28° 17' E. long. and lies between 29° 55' and 34° 17' S. lat. Its most western point is at the mouth of the Koussie river, which, with the Bosjesman's country, forms the northern boundary of the colony; on the west and south it is bounded by the Atlantic and Indian Oceans; and on the east by Kaffreland. Its length from west to east, from the point of the Cape Peninsula to the mouth of Fish river, is 580 miles; from the river Koussie to the Snowy Mountains 520 miles: giving a mean breadth of about 550 miles. Its breadth from south to north, from the mouth of the Koussie to the Cape Point, is 315 miles; from the Nieuwveldt Mountains to Plettenberg's bay 160 miles: giving a mean breadth of 223 miles, and including an area of 128,150 square miles, according to the chart constructed by order of lord Macartney, during the British possession of the colony, prior to the peace of Amiens. On the east, upon which the Caffre tribes are often making incursions, it is necessary to preserve the chain of posts particularly strong. Northward the boundary line is little more than imaginary, being formed by the commencement of arid sands, stretching into the interior of the continent, or the winding ranges of barren hills, where no settled tribes can exist. Over this district are scattered 61,947 inhabitants (exclusive of the British army and navy), according to the latest returns: of whom 10,983 are white males, 9,482 white females; 1,281 servants and people of color; 25,754 slaves; and 14,447 Hottentots.

The whole colony is intersected by chains of mountains crossing it from east to west, and generally barren; some few ranges on the western coast run from south to north, and one in particular, which begins at False Bay opposite the Cape Point, stretches northward to Olifant river, an extent of about 210 miles.

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a belt of coast of irregular breadth, varying from 20 to 60 miles) which is well covered with soil, indented with bays, and watered by numerous streams. The second great chain, formed by the Zwarte Berg or Black Mountains, is of much greater elevation, and more rugged in appearance than the former. It frequently breaks like the Andes of the New Continent, into double and treble ranges, and encloses with the first a series of elevated plains of about the general width of the coast lands from north to south, but very various in their character; occasionally presenting nothing but a succession of clay flats, known by the name of Karroo. In other places small plantations and farms meet the eye, on the borders of feeble streams; and are as extremely productive as the surrounding flats are barren. The whole of these lands are much higher than those to the south of the ranges, and the temperature is as various as the aspect of the country. The third principal chain, of a still greater average height, is denominated the Nieuwveldt's Gebergte, and forms the northern boundary of a vast uninhabited karroo, or desert, commencing at the foot of the second. Here severe frosts in the bad monsoons, and the vehement heats of the summer months, seem alike the enemies of all vegetation, and human habitations rarely relieve the waste.

Of the various bays that indent the long range of coast possessed by this colony, False Bay and Table Bay, the former on the southern, and the latter on the western shore of the Cape Peninsula, are the principal resort for shipping. From September to May, usually reckoned as the summer months, Table Bay presents a secure shelter from the south-east winds; and during the rest of the year False Bay, and its cove or adjunct, Simon's Bay, are preferred, as shielding vessels from the northern and north-west winds. Hout, or Wood Bay and Chapman's Bay, on the west coast, are also frequently entered The first of these, though small, is remarkably sheltered by the surrounding heights; but the eddy winds, caused by that circumstance, render it difficult of egress and regress. Between Simon's Bay and Cape Town is a remarkable pass, which may be called the Thermopylæ of the Cape, and to which, as well as indeed to all the principal bays and passes of the colony, the attention of government has of late been particularly directed. This pass is now supposed to be impregnable to any army that could be landed in the bay. Saldhana Bay, in lat. 33° S. is commodious and well sheltered, being about fifteen miles long from north to south, and from two to three miles broad, and running between lofty granite hills; but wood and water are very scarce in the neighbourhood. The rivers on the western coast are Olifant or Elephant River, which empties itself into the Atlantic in S. lat. 31° 30′.; and the Berg, or Mountain River, which has its source in the Roggeveldt Mountains, and after receiving several minor streams in its passage, falls into St. Helena bay. On the south are Gauritz River, the principal stream that waters the colony, and which, descending from the Black Mountains, becomes during the rains a very rapid torrent; Broad River, falling into Sebastian's Bay, and nearly a mile in width at the mouth; Camtoos River, running into a bay of the same name, and deep enough within the bar to float a ship of the line; Sondag, or Sunday River, which rises in the Nieuwveldt or Snow Mountains, and after watering a considerable portion of the Graaff Reynet district, discharges itself in a south-east direction in Zwart Kops or Algoa Bay; Zwart Kops River; and the Great Fish River, which takes its rise in the Snow Mountains, at a distance of 200 miles from the sea. None of these streams are calculated for the navigation of vessels of burden, being almost uniformly blocked at the mouths by beds of sand or reefs of rock; they are, however, well stored with fish, particularly with a small kind of turtle, perch, and eels; and are exceedingly prized by the colonists for the fertility which crowns their banks.

The climate of this colony is, on the whole, salubrious, but subject to very sudden changes of temperature. During what is called the good monsoon, or the summer months, commencing in September, south-east winds are most frequent, and, springing up about noon, drive the whole atmosphere into circulation, and die away in the evening, which is delightfully cool and exhilarating. Sometimes, however, they assume a more violent and stormy character; a dry and blasting heat attends them, and sweeps over the land like a mildew; relaxing the human frame, and spreading destruction among the luxuriant fruits of the district. In the bad monsoon, or winter months, north-east winds prevail. There seem to be few or no diseases peculiar to this spot; in Cape Town, however, the instances of longevity are rare, and bilious fevers are frequent everywhere among the slaves. The annual deaths in the town, taken on the average of eighty years, were about two and a-half per cent. among the white, and three per cent. among the slave population.

The territory of the cape was divided by the Dutch into four districts or drosdys, each of which was governed by a landrost, and a council of six hemraaden. These were, 1. The Cape. 2. Stellenbosch and Drakenstein. 3. Zwellendam, and 4. Graaff Reynet. The Dutch system of government has been followed by the British, but subdivisions of the country districts have taken place. The northern part of what was once the united district of Stellenbosch and Drakenstein, has been called the district of Tulbagh, and a new drosdy and landrostship has been erected. District George has been formed out of the southern parts of Zwellendam, east of the river Gauritz; and the southern part of Graaff Reynet has been called the district of Uitenhagen. That of the Cape is by far the most important of these governments, and reaches from St. Helena Bay, to the breadth of twenty-five miles from the shores of the ocean; being about eighty miles in length; twenty-five in breadth; and containing an area of 2000 square miles.

Cape Town, the capital, is situated in the bosom of hills branching out from the Table Mountain, and is a neat and well built place The streets throughout are at right angles with each other, and composed of houses mostly built of stone. Many have canals running down them, shaded with avenues of oaks, and a fine stream from Table Mountain fertilises the neighbourhood. There are several handsome squares devoted to the public markets and military purposes; a Calvinist and Lutheran church, guard-house, justice court, and theatre. The government house is on the side of Table Mountain, surrounded by a fine public garden, and several handsome villas. Eastward of the town is a pentagon fort or castle, surrounded with a ditch and outworks, which enclose the bank, called the Lombard bank, the orphan chamber, and other public offices; here also are a magazine for military stores, and barracks for 4,000 men. The town is further defended by several forts on the shores of Table Bay; the principal of which are Fort Knokke, connected with the castle by the rampart called the Sea lines, and Craig's Tower, east; the Lion's Rump, Rogge Bay battery, Amsterdam, and Chavenne battery, west; and an important outwork, called the Mouille, at the entrance of the bay. The inhabitants are estimated at about 5,500 whites and people of color, and 10,000 blacks.

The Table Mountain is too conspicuous a feature of this part of the colony to escape the attention of any stranger; while it will reward the most scientific investigation of its natural history, and presents some very curious mineralogical facts. At a distance it assumes the appearance of an immense battlement in ruins, crowned during the summer months with an elegant fleecy cloud, which, in allusion to the popular name of the central part of the mountain has been not unaptly called the Table Cloth. The north front, facing Cape Town, forms a horizontal line at top, of about two miles in length, the face of which is supported by a number of projecting rocks that stand out upon the plain below like buttresses, and terminate in the mountain about midway towards the summit. Two great chasms divide the upper part of its face into three distinct eminences (the centre one falling back, and its wings or bastions projecting forward), which are named from east to west, the Devil's Head, Table Mount, and Lion's Head. Along the sea shore the west side is highly picturesque, presenting a vast number of pointed and time-worn masses, rising at last into a solid rounded block, resembling, according to some descriptions, the dome of St. Paul's cathedral placed upon a conical-shaped eminence. This part of the mountain is 3315 feet above the level of the sea; the eastern wing (the Devil's Hill) is also remarkable for its craggy broken brow; it runs off at right angles to the front, and is the most elevated of the three summits, being 3582 feet in altitude. The Table, properly so called, is only 2160 feet above the bay. Southward the mountain breaks away in steps or terraces into the chain that extends along the whole Cape Peninsula. A deep chasm, that divides the curtain from the left bastion of the mountain, leads the way from the town to the summit of this romantic elevation. Its length is about three quarters of a mile, and the angle of ascent through it about forty-five degrees. The entrance is particularly imposing. Perpendicular walls of granite here rise on each side of the passenger, at the distance of eighty yards from each other, to the height of 1000 feet, and gradually close towards the opening at the top, on which he in a moment finds himself commanding a boundless view. The penæa mucronata, a tall and elegant shrub, is peculiar to this spot; as also a species of heath, called the physodes, which bears a beautiful cluster of white flowers. The air on the summit is in most parts of the year mild and pleasant; in winter it is about 15° of Fahrenheit lower than at Cape Town; and in summer still more, through the density of the Table Cloud.

Stellenbosch, and Drakenstein, are districts of the former Dutch division, which comprehended the present divisions of Stellenbosch and Tulbagh. They were formerly governed by one landrost and two heemraaden, but are now entirely distinct governments, and extend together, from Cape l'Agullas south, to the river Koussie northward, and from the ocean and the Cape district west, to Breede River and the Gamka, or Lion's River eastward; having a mean length of 380 miles, and a breadth of about 150; enclosing an area of 55,000 square miles. Scarcely a twentieth part of this area is in a state of cultivation. The valley of Drakenstein, however, on the east of the Cape, is well inhabited, and the sections of these districts between False Bay and the long range of mountains that run northward to the Elephant River, are amongst the most fruitful parts of the colony. East Zwartland, and the neighbourhood of the twenty-four rivers, are valleys in this direction that are called the Granaries of the Cape; and the Roggeveldt mountains and valleys yield a large and strong breed of horses, originally introduced from South America.

The original district of Zwellendam comprehended the most southern belt of land in the colony, lying between the Black Mountains and the ocean, north and south; and the district of Stellenbosch, and that of Graaff Reynet, east and west. It was about 380 miles long, and sixty broad, containing an area of 19,000 square miles. District George now cuts off about one-half of the fruitful portion of this district towards the south. The mountains of the coast are clothed with forest trees, and the plains with shrubs. This part of the colony as a whole is more fruitful than any other; and contains one subdivision out of which the Dutch government reserved 20,000 acres of land in its own hands for the growth of corn, of which it yielded 10,000 muids annually, besides nourishment for 1000 horses, and 1000 head of cattle. The village of Zwellendam is situated in a delightful valley, and the new rising town of the name of George, is in the immediate neighbourhood of the land just mentioned.

Graaff Reynet district is bounded on the north by the Bosjesmans' country, or the limits of the colony in this direction; on the south by the districts George, Uitenhagen, and the sea; west by part of Zwellendam; and east by Kaffreland. The eastern subdivisions (by far the most productive) are molested by the incursions of the Kaffres and Bosjesmans, who recently seized

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and murdered the landrost of the district, with all his family, at his own residence in the village of Graaff Reynet. Very little grain is grown in this district, from the difficulty of its finding a market, and from the circumstance of the frequent descent of locusts from the mountains; but cattle and sheep thrive well here. The village at which the landrost resides scarcely boasts a dozen houses besides his own. In the Sneuwberg division of this district on the banks of the Fish River, are two mineral springs of great repute among the colonists, for the cure of rheumatic and cutaneous disorders; the water is at the temperature of 88° Fahrenheit. South of these waters, and west of Sunday River, is a large salt water lake, which is an object of resort for the inhabitants of various neighbouring and remote regions, who obtain a valuable supply of that mineral from it annually. The salt is taken out in masses of from four to six inches thick, which are broken down on the banks of the lake, where a much finer salt accumulates after a dry wind; the latter indeed is said to equal in its native state any of the refined salts of this country.

The predominant soils of this colony are a stiff clay, into which no plough will enter until it is thoroughly soaked with rain, and a light red sand, capable of extreme fertility wherever it is sufficiently irrigated. The superinduced soil, which is furnished by the decomposition of vegetables, is of course rarely seen in a country everywhere penetrated by ranges of naked mountains, and three-fifths of whose surface wears not the least appearance of verdure during the greater part of the year. Sometimes, indeed, where these eminences form a channel for the floods of the rainy season, or natural springs are found, a singular luxuriance will appear in the valleys, and many farmers have cultivated these patches among the mountains on the southern coast; but no part of the earth has hitherto seemed abandoned to more complete sterility than the greater portion of those vast karroo plains that occupy the interstices between the great mountain-ranges. Impenetrable clays, strewed with sand, stretch for miles under the aching eye; and the larger and smaller hills that interrupt the surface are only diversified masses of sandstone, blue slate, felspar, and ironstone, in the midst of which a single blade of grass is rarely seen.

The operations of nature are here, however, conducted in singular extremes. Where iron or its oxydes are liberally mixed with the clay, and the fertilising aid of the feeblest rill can be brought to bear upon the soil, astonishing fertility will occasionally ensue; some of the best grapes and fruits of the colony are yielded on these spots, the influence of a few showers of rain in other places is equally remarkable; parched as they will appear with the hot season, and utterly deserted by everything living, the rains of a few days will clothe whole acres with verdure; the botanist is suddenly presented with the richest harvest of plants that is to be found in any country; and flocks of antelopes are quietly grazing. Of the capabilities of such a country, therefore, under the hand of British industry, it is quite impossible to form a fair estimate at present. A deep and fertile soil appears to reward the long culture of some of the most unpromising spots. Such, at any rate, is the character of the land stretching from Cape Town to the east, or between the most southern mountains and the shore.

Different portions of the colony are very differently affected by the heats of summer; and in the Table Valley an epitome of all the varieties may be said to be found. One of the British officers, who was stationed there during our former possession of the Cape, 'declared,' says Mr. Barrow, 'that those who lived in it were either in an oven, or at the funnel of a pair of bellows, or under a water spout.' There is a difference in the summer months of from eight to ten degrees, of Fahrenheit's scale, between the temperature of Cape Town and Wynberg, at the distance only of about eight miles, from the circumstance of the latter lying to the windward of the Table Mountain and the former to leeward of it. The summer is not oppressive to Englishmen in its general temperature at the Cape, and during the months of July, August, and September,(answering, as we have seen, to our winter months), all the European settlers are glad, as a home, of a constant fire. The characteristic indications of the approach of winter at the Cape are the withdrawing of the silvery cloud from the head of the Table Mountain, and the gradual change of the winds from south-east to north-west. A raw and cold feel first accompanies the latter, which gradually heighten into perfect hurricanes, and storms of thunder and lightning, which continue for several days. When the weather clears, the mountains east and north are seen to be covered with snow, and the head of the venerable Table to have exchanged its fleecy garb for a thin covering of snow or ice. The British soldiers were so remarkably healthy, during our first occupation of the place, that in the regimental hospitals of 5000 troops not more than 100 men were entered during several months (and with complaints brought on from the sort of excesses in which the natives indulge), while the general hospital had not one sick man. There is hardly a finer spot, indeed, in the dominions of Great Britain, as we shall see in the sequel of this account, for the seasoning of troops for a warm climate. Eastward of the colony, the Caffres, who are inured to exertion from their childhood, present as fine a race of men, generally reaching six feet high, robust and muscular, as are to be found on any portion of the globe.

In almost every part of the isthmus that connects the Cape Peninsula with the continent, fresh water rises at the depth of ten or twelve feet. At Wynberg, eight miles from Cape Town, a rill of water was recently discovered in boring at about twenty feet below the surface of the ground; and when some workmen were pricking for coal in the Tiger Hills, at an elevation of twenty feet, a copious stream of water, according to the above author, was collected in the level in the month of February, the dryest season of the year.

The profitable productions of the colony, taken as a whole, are wine, grain, all the European and most of the tropical fruits, vegetables of every description, cattle and sheep. At the foot of the Table Mountain are considerable plantations of the protea argentea, or silver tree (a species of the protea peculiar to this spot), the stone pine, and the white poplar. Avenues of oak adorn the country houses, and this tree grows rapidly throughout the colony, but rarely to any perfection as timber. It is constantly cut down, with the rest of the few forest trees of the Cape, for fuel, an article very scarce here, and which seems to have been very intemperately supplied from the plantations of late years, without any provision for a succession of trees. Another species of protea, the kreupel boom of the Dutch, is also planted extensively on the hills of the Cape district; its bark is used in tanning, and the branches for fire-wood, a purpose to which are devoted various other species of this tree, which grow wild throughout the Peninsula, and many heath plants that grow on the smaller hills of that neighbourhood. Most families in decent circumstances are obliged to keep a slave employed entirely in the collection of this latter article.

Lord Macartney directed various efforts to be made during the period of his government, in search for fossil coal; and the operations in the neighbourhood of Table Bay were not wholly unsuccessful, when they were suspended by the discovery of a stratum of coally matter along the banks of a deep rivulet, flowing out of Tygerberg Hill, on the east of the isthmus which joins the Cape Peninsula to the continent. It ran horizontally, from ten inches to two feet in width over a bed of indurated clay, and was surrounded by strata of pipe-clay and white sandstone. The main bed does not appear to have been found; but large ligneous blocks were dug out in some places; in others the lithanthrax of naturalists, a turfy sort of coal, appeared, similar to the Bovey coal of England. The ligneous blocks burnt with a clear flame, leaving white ashes; the more earthy and compact parts of the stratum not so clear, and leaving a sort of slaty caulk, with a brown crust.

On the mountains of the southern coast as we have already stated, and particularly in the neighbourhood of Plettenberg's Bay, some lofty forests are found. The trees are of quick growth and considerable size, but generally hollow in the heart and much twisted in grain; profitable timber is rarely procured from them.

Wheat, barley, and pulse, are cultivated with success throughout the Cape district, and in the valleys of Drakenstein, East Zwartland, and the Twenty-four Rivers, which appear capable of any kind of agriculture. In fruits, flowers, and elegant shrubbery, no country exceeds the Cape. The apricots, oranges, peaches, prunes, and grapes, of Europe, flourish in the greatest perfection; pomegranates, melons, apples and pears, almonds, chestnuts, walnuts and mulberries, are also plentiful. The apples and pears are rather inferior; but strawberries are found ripe all the year and a few raspberries of a superior quality. No grapes in Europe are thought superior to those of this colony.

There are some good pasture farms on the eastern side of the mountains that run northward from the Cape, and at the southern foot of the Zwartzberg, or Black Mountains. In the same direction are found whole plains of the common aloe, which forms a considerable article of traffic. Horses are the favorite speculation of the grazing farmers in this direction, however, and the rye-grass of the district appears to suit them well.

The wild animals of the Cape are the lion, rhinoceros, elephant, hippopotamus, buffalo, wolf, panther, leopard, hyæna, jackal, zebra, tiger-cat, quacha, and various tribes of antelopes. Of these the gnoo, an elegant mixture of the horse and antelope, seems peculiar to this part of Africa. His body, shoulders, and mane, resemble those of the former animal, except that the mane is rather under than upon the neck, running from the breast between the fore legs; his legs have the exquisite finish of those of the antelope; while his head resembles that of a buffalo. The flocks of antelopes have greatly receded from the coast within these few years, and are now principally confined to the eastern, or Graaff Reynet district. The lion is said to be peculiarly cowardly and treacherous here. The elephant is taken by the Hottentots by digging pits under his haunts; but the European settlers openly hunt him, as well as the rhinoceros, and kill them with fire arms. Here are also hares, and a rock-rabbit without a tail.

Ostriches, eagles, vultures, kites, pelicans, cranes, ibises, flamingos, and spoon-bills, with wild ducks, geese, teal, snipes, and partridges, abound in the colony; together with a vast variety of the smaller birds of most beautiful plumage. The markets are well supplied with fish, both from the open sea, the rivers, and the numerous inlets of the coast. Bream, perch, soles, mackerel, skate, and rock-fish, are the most common; and, of shell-fish, the oyster, crab, and muscle. Seals were once found in large quantities in the islets of False Bay, but are considerably diminished of late years. The whale is taken in Table Bay: a company of merchants formerly associated in the town for the prosecution of a South Whale Fishery; it was a speculation, however, that did not succeed; the fish are certainly inferior to the whale of the northern seas, though Mr. Barrow is still sanguine in his expectations from a similar undertaking.

The horses most in request here are the black and grizzled breed of South America, which are elegant in appearance, and though small are very strong. Large numbers of oxen are raised in the eastern division, and the animal is much used in draught work throughout the colony. In his make he runs to waste, (as the English farmer would say) the shoulders are high, his legs unusually long, and his horns large. Mr. Barrow saw many of them with long scars in their sides, arising from the practice of cutting them with knives, as a method of urging them forward over a difficult pass; and mentions a wealthy inhabitant of the Cape who boasted that he could at any time start his team on a full gallop by only whetting his knife on the side of the waggon! 'In exhibiting this masterly experiment,' he adds, 'the effect of a constant and long perseverance

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os, elephant, hippopotamus, buffalo,
anther, leopard, hyæna, jackal, zebra,
quacha, and various tribes of antelopes.
the gnoo, an elegant mixture of the
d antelope, seems peculiar to this part of
His body, shoulders, and mane, resemble
the former animal, except that the mane
under than upon the neck, running
breast between the fore legs; his legs
exquisite finish of those of the antelope;
head resembles that of a buffalo. The
antelopes have greatly receded from
within these few years, and are now
ly confined to the eastern, or Graaf
istrict. The lion is said to be peculiarly
and treacherous here. The elephant is
the Hottentots by digging pits under his
out the European settlers openly hunt
vell as the rhinoceros, and kill them with
Here are also hares, and a rock-rabbit
tail.
es, eagles, vultures, kites, pelicans, cranes,
amingos, and spoon-bills, with wild
ese, teal, snipes, and partridges, abound
lony; together with a vast variety of
er birds of most beautiful plumage.
ets are well supplied with fish, both
open sea, the rivers, and the numerous
the coast. Bream, perch, soles, mack-
e, and rock-fish, are the most common;
hell-fish, the oyster, crab, and muscle.
e once found in large quantities in the
False Bay, but are considerably dimi-
f late years. The whale is taken in
y: a company of merchants formerly
l in the town for the prosecution of a
Whale Fishery; it was a speculation,
that did not succeed; the fish are ex-
erior to the whale of the northern seas,
r. Barrow is still sanguine in his expec-
om a similar undertaking.
rses most in request here are the black
ed breed of South America, which are
appearance, and though small are very
Large numbers of oxen are raised in
n division, and the animal is much
aught work throughout the colony. In
ne runs to waste, (as the English farmer
) the shoulders are high, his legs una-
z, and his horns large. Mr. Barrow
of them with long scars in their sides,
m the practice of cutting them with
a method of urging them forward over
pass; and mentions a wealthy inhabi-
e Cape who boasted that he could at
tart his team on a full gallop by only
is knife on the side of the waggon!
ting this masterly experiment,' he adds,
of a constant and long perseverance

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in brutality, to some of his friends, the waggon was overturned, and one of the company, unluckily not the proprietor, had his leg broken. Hottentot's Holland Kloof, a steep pass over the first range of mountains beyond the promontory of the Cape, has been the scene of many an instance of this sort of cruelty. I have heard a fellow boast that after cutting and slashing one of his oxen in the kloof till an entire piece of a foot square did not remain in his whole hide, he stabbed him to the heart; and the same person is said, at another time, to have kindled a fire under the belly of an ox, because it could not draw the waggon up the same kloof.' Goats are numerous in some parts; hogs are badly fed, and never eaten at a respectable table; and poultry is very rarely seen.

At Cape Town, is the seat of government, and a court of justice, to which the provincial courts appeal; the landrosts, or resident magistrates of the other districts, exercising a feeble authority. The Dutch system of governing this colony was found, indeed, on its conquest by our arms, to be exceedingly ill-contrived, and badly executed; but quite impossible to be suddenly changed amongst an obstinate and ignorant race of colonists. The landrosts were originally appointed for the purpose of settling disputes between the farmer and the oppressed natives; he was impowered to levy fines to a certain amount, and to collect the government and parochial imposts. His assistant council, called the hemraaden, comprised a few of the principal settlers of the neighbourhood, generally about six; and under them were placed an indefinite number of feldtwagtmeesteers, or superintendents of subdivisions of the district, who were to settle the water courses, rights to springs, &c. The boors, as they call themselves, who were the principal agents of this administration, of course, always favored their brother boors; crimes of every kind were committed with impunity, within a few miles of the Cape; and the mere inconvenience of discontinuing his personal visits to the markets of the capital was the sole punishment of the murderer, and men under sentence of outlawry for contempt of the provincial courts. Public justice, however, has of late been gradually assuming its firm British character.

About midway between False Bay and Table Bay, are the two farms mentioned by Dr. Sparrman, as producing the genuine Constantia wine, of which they yield from fifty to a hundred leaguers of 154 gallons, annually. They lie directly under the mountains, a circumstance to which the richness of the soil is, no doubt, in part to be attributed; the grapes are the muscatel; and particular care is taken in the whole process of the vineyard, to sustain the reputation of the spot, and in particular to reject all stalks and unripe fruit from the press. The whole of the farms on this part of the Peninsula yield together about 700 leaguers of wine; and green and ripe grapes, and prepared raisins, are sent in abundance from them to Cape Town. A distinct and laborious collection of the bulbous roots of the Peninsula has been thought worthy of a place in the botanic garden at Kew; but many of its elegant varieties are still said to be wanting there.

The shrubs and heath plants that diversify the hills of the Cape district, the chasms of the mountains, and every spot where a root will strike, are also almost endless in their variety; Doctor Roxburgh enumerated 130 species of the latter between the Cape, and the first range of mountains. The wax plant also grows abundantly on the sandy parts of the isthmus. In the clefts of kloofs of the mountains in this district are found the few remaining holds of the hyænas and wolves, which formerly infested even the streets of the capital, and still approach its outskirts in the night, in scent of the offal and dead cattle which are suffered to be thrown down on the public roads. The das, called by Pennant the Cape cavy, is a curious little animal, which also abounds in these caverns. Its size is about that of a rabbit; its color a light dusk; its ears are short, and it has no tail; the flesh is eaten at table. The steenbok, the Guinea antelope of Pennant, and once the most numerous of the antelope tribe in this district, is now nearly exterminated.

The inlets of South Africa abound with whales which run from fifty to sixty feet in length, and yield from six to ten tons of oil. They appear to make these bays a shelter for their young, and it is remarkable that none but females have been caught for years together. They are easier taken than in the northern seas, but, from their inferior size, the bone is not valuable. The penguin now supplies the place of the seal on the islands of False Bay. Scolopendras, scorpions, and immense black spiders, infest the Cape; but the mosquitoes are not so annoying as in most warm climates. A particular species of garden locust is, perhaps, the most formidable insect of the country: and the bite of the small sand-fly is very troublesome. Small land turtles are found in all the open parts of the peninsula; the camelion is also frequently seen, and various species of lizards. The most formidable of the snake tribe (which every where abounds, and most of which are venomous) is the cobra capella, as it is called, or hooded snake, of which the Hottentots are particularly afraid, and for which they, as well as the Dutch settlers, use a ridiculous remedy, called the slange steen, or snake stone. It is declared by those who deal in it to be a stone taken out of the head of a particular kind of serpent, and the criterion of its virtue is that, when plunged into water, it should produce bubbles on the surface. The fact is, it is a piece of ivory or firm bone, burnt round the edges into an oval shape, and the porosity of the bone constitutes its virtues, such as they are. The fascinating power of serpents over birds is uniformly asserted in this country, but their influence is not supposed to be extended to the human species.

All marriages in the colony must be performed at Cape Town; the following table contains a list of them for eight years, and the christenings and burials of the capital during the same period; giving an increase of christenings above burials of 1,416 in that time.

	Marriages.	Christenings.	Burials.
1790	130	350	186
1791	97	354	146
1792	174	360	144
1793	158	288	116
1794	211	308	111
1795	213	308	145
1796	249	257	168
1797	217	364	157
In eight years.	1449	2589	1173

To the north-east of Stellenbosch are the valleys of Great and Little Drakenstein, sheltered by lofty mountains, and well watered throughout by the river Berg and its minor streams, which unite in about the centre of them. The subdivision of Little Drakenstein is enclosed, as it were, by the larger valleys, and the two together supply full two-thirds of the wine of the Cape market. On the west of this valley is the village of Paarl, surrounded by a very fine tract of land, and distinguished by a curious mass of granite, surmounted with a number of large round stones, like the pearls of a necklace, to which it owes its name. The pearl is inaccessible on three sides, and rises about 400 feet from its base on the summit of the mountain, where it measures in circumference, according to this writer, a full mile. The sloping northern side by which it is ascended, is upwards of 1000 feet in length, and nearly covered with a species of green lichen. Towards the summit it is split by two deep clefts crossing at right angles, in which grow a number of beautiful aloes, and several cryptogamous plants. The whole side of the mountain is a perfect garden of various and beautiful plants.

In the autumn the exquisite scenery of this spot is further heightened by the presence of large numbers of a beautiful little bird called the creeper, some species of which unite the most enchanting powers of voice with their elegant attractions for the eye, and occasionally call off the attention of the traveller from every other part of the scene.

The mountains to the east of this valley are the barrier wall between the Cape, or western coast, and the interior; and there are but three passes, or kloofs, that are ever crossed by wheels. Eland's Kloof to the north, which opens into plains almost entirely uninhabited. Roode Sand Kloof opposite to Sandhana Bay, which communicates with Graaf Reynet and the north-east of the colony; and Hottentot's Holland Kloof, in the neighbourhood of False Bay, which leads from the Cape into the district of Zwellendam.

Franche Hoeck, the French Corner, occupies the south-east angle of this beautiful valley, and is not the less interesting from the recollection of the causes that brought its first settlers here, the persecutions that ensued on the revocation of the edict of Nantz. To these injured confessors of Protestantism the whole colony is indebted for the cultivation of the vine, here first introduced by them.

The division of East Zwartland and the twenty-four rivers, 'the Granaries of the Cape,' deserve particular notice. They lie to the north-west of the valley of Drakenstein, or between the Berg river west, and the great northern chain of mountains east. The wheat crops are very fine and full, and the land rich to perfect luxuriance. Rice also flourishes in the marshy grounds, and abundance of fruit; but wine is only made for domestic use. The Berg river, whose numerous streams give name to it, is an invaluable acquisition to the valley of the twenty-four rivers; and being capable, at a comparatively small expense, of a communication with Saldhana Bay, bids fair, in some future time, to open an important avenue of supplies to shipping. 'Should the bay of Saldhana,' says Mr. Barrow, 'at any future period, become the general rendezvous for shipping, these two divisions will be more valuable than all the rest of the colony.' The crops in the Zwartland district are more precarious, having a greater dependence on the quantity of rain that falls.

North of the plain of the twenty-four rivers is the Picquet Berg, which grows tobacco in large quantities, and of the best description in the colony. Here also horses, cattle, and sheep, are more cultivated than to the south, while the grain and fruit is not inferior.

The division of Olifant's or Elephant's River terminates this fruitful series of plains. This stream is navigable for small craft full twenty miles up the country; but its banks are uninhabited until it reaches this valley, which is situated between a double ridge of the mountains that run northward from the Cape.

Crossing the great chain of mountains to the east, we now have a succession of grazing farms, scattered over vast karroo plains, and producing some of the finest horses and horned cattle of the colony.

To the north-west, at the distance of five days' journey over an absolute desert, is the rich grazing country formerly inhabited by the Namaaqua Hottentots. It consists of a series of plains at the foot of the Khamies Berg mountains, which form the northern extremity of the colony, and unite with the Copper Mountains, which run an unknown course into the interior of the continent.

Among the Roggeveldt Mountains in this neighbourhood, and a little to the south, is the division of Roode Sand, or Waveren, about thirty miles in length, and seventy miles from Cape Town; on the road to which is the kloof of Roode Sand, a much frequented pass through the great chain of mountains. Here is a small rising village, with a church and comfortable parsonage. The valley is abundantly watered by streams connected with the Berg and Breed rivers, and is fruitful both in grain and wine. The Chinese bamboo flourishes in great beauty; rice, the Cape olive, and the palma Christi.

Further south, on the border of the Hex and Breede rivers, are some excellent meadows, well adapted for the growth of corn; no part of the colony is better watered. South of this is Zoek Milk, or Sweet Milk's Valley, containing the meritorious establishment of the Moravians, or Hernhuters as they were originally called, whose kind offices towards the poor oppressed aborigines of the country were never duly appreciated by the Dutch. During both the periods in which the colony has been in British possession, their influence has been much encouraged and increased. These appear, indeed, missionaries well adapted to obtain a permanent triumph in their benevolent designs. They have devoted themselves to the civilisation of the Hottentot, as the best mode of reaching both his understanding and his heart. Mr. Barrow, in his first journey, found three of their venerable ministers surrounded by 600 Hottentots, and an establishment that breathed the simplicity and meek effective zeal of their system. Their church, at the upper end of the valley, was a plain but neat edifice; their corn mill the best in the colony; and the garden of their village in the highest state of cultivation. One 'adorned' his Christianity, thus circumstanced, by acting as the smith of the establishment; another as a shoemaker, and a third as a tailor. 'They were men of the middle age,' says Mr. B., 'plain and decent in their dress; cleanly in their persons; of modest manners; meek and humble in their deportment, but intelligent and lively in conversation; zealous in the cause of the mission, but free from bigotry or enthusiasm.' . It is their habit to teach every one of their converts some useful trade. The place is now called Gnadenthal, and contains about 1300 inhabitants. There is a similar establishment at Groenekloof.

The Kamnasie mountain on the east is surrounded with a few grazing lands and woody hills, that lead down to the Lange Kloof, or Long Pass, a delightful valley between the mountains, along which runs one of the best roads in the colony. A series of rich pastures here suddenly burst upon the traveller, bordered by a profusion of heath plants, and studded with farmhouses, to the length of 150 miles; each farm being, by a regulation of the Dutch government, three miles distant from the other. At every house is a vineyard and fruitery, yielding the Persian or Muscatel grape, which is generally dried in a summary way for the Cape market; and remarkably fine oranges. The inferior and bruised grapes are thrown with the undergrowings, and with the lees or dregs of new wine, into large vessels to ferment, and from this is procured the brandewyn, an execrable cheap spirit, of the Cape. Here are also extensive plantations of tobacco.

There is but one road leading to the south of the valley called the Duyvil's Kop, or Devil's Head, which is esteemed one of the most formidable passes of the country. Sixteen oxen were yoked to each waggon of Mr. Barrow's party in passing this place, which toward the top is a complete set of stairs, or steps from stratum to stratum of the rock, some of them from three to four feet high, while the width of the road is not more than fifteen paces. Over these it was necessary to lift the waggons by main strength; and just as our traveller reached the summit, one of those remarkable changes in the weather took place which will strikingly illustrate the character of this climate. The day had been remarkably pleasant, the thermometer standing at 74°, when the whole hemisphere was suddenly overcast, and an immense sheet of black vapor approached from the south-east. Rolling up the mountain in distinct volumes, rapidly succeeding each other, it completely immersed the party at the top, and the temperature sunk to 39°. Snow had fallen on the same day (the longest in the year) near Zwellendam, and laid for some time on the mountains, unmelted. The descent on the south side is by no means difficult.

The most eastern division of this portion of the colony comprehends all the country between Plettenberg's and Camtoos Bay, and is penetrated by a range of forests running parallel with the sea coast for 150 miles, where the stately elephant, the rhinoceros, the buffalo, and the antelope, are found in their primitive herds. There is no regular road through these thickets, but many large and well watered plains have been cleared in the midst of them. We count no less than nine minor rivers in the official chart. There are also several lakes abounding with fish. Cattle and sheep are the principal productions, but there is no part of the colony more evidently capable of improvement, or indeed of any kind of agriculture. The wood of this district has never been fairly cultivated; such of it as is only fit for fuel can hardly be got to market, through the badness of the roads from the principal forests to the Cape. Were these once equal to what the demands of the Cape for fuel, and the abundance of the supplies in this neighbourhood alike seem to dictate, an unfailing source of emolument would be opened to the colonist, and a capital supplied for the working of the iron ores, and the rearing of profitable timber, to an almost indefinite quantity.

The settlement of the town of George, in this neighbourhood, is one of those circumstances that must tend to the development of these resources; it was a measure of Sir J. Cradock's government.

This and the Graaff Reynet district furnish the principal and best trees of the colony.

Of these the cyperus or cedar-hout has the recommendation of a strong turpentine smell, which preserves furniture from insects; the geel-houts run occasionally much larger, and would make an excellent substitute for fir on a variety of occasions; the hassagai-hout is an elegant wood for domestic purposes; the koeha might be recommended for superior household furniture; and the planks of the wit Essenhout for flooring of all sorts, and boat planks in particular.

Graaff Reynet District, as originally laid down, was the termination of the colony eastward; divided between about 700 families. The whole of the south of this division up to Albany has been recently called the district of Uitenhagen. It is generally speaking, a grazing district, but grows upwards of 10,000 muids of good corn annually; and about half the quantity of barley. See ALBANY. The inhabitants of this colony may be considered as divided into six very distinct classes of human beings; including, perhaps, as great a variety of human character as could be found upon any equal space of the earth's surface. 1. The native, or Hottento tribes. See HOTTENTOTS. 2. The slave population. 3. The vine growers. 4. The grain farmers. 5. The graziers; and 6. The town's people of the cape.

The slave population Mr. Barrow describes as better fed and clothed than any of the peasantry of Europe: the domestic slaves at Cape Town live a wretchedly idle life. Every child amongst the richer inhabitants has its attendant of this description; and to humor its caprices is amongst their most important employments. Twenty or thirty of them, in other establishments, will be engaged to do the work of six good English servants. The education of children is also, in many cases, wholly left to the most clever of them. The aspiring temper of this part of the population was decidedly indicated at that period of the French revolution which was fatal to the independence of Holland. Just at the crisis of the arrival of the British forces in 1795, the slaves had their regular meetings, and discussions upon the prevailing doctrines of the day, and were even becoming bold enough to hint to their mistresses, 'We carry you now; but by-and-by it will be our turn.' The whole system, in fact, is a disgrace and an incumbrance to the colony.

The vine growers, or wine boors as they are called at the Cape, are the most opulent cultivators of the soil of this colony. Their lands are chiefly freehold, exempt from almost all taxes, and capable of any sort of cultivation. The size of their farms is about 120 acres, English, and the culture of the grape, with an elegant garden, generally occupies the whole. Descended from the old French families who first introduced the vine into the colony, they retain much of the suavity and communicativeness of their ancestors, and in this respect, as well as in the numerous comforts of their establishments, impress the stranger with a feeling of their respectability and of their decided superiority over their neighbours. But the French language is never heard amongst them, and a French book of any kind is rarely seen.

The produce of their vineyards is brought to market from September to the period of the new vintage in February or March, but principally in the four last months of the year. Here it is subject to a rate of three rix-dollars per legger of wine or brandy, on passing the barrier; but no duty is laid upon it at the vineyard, or when sold in the country. The only taxes to which the grower is subject are a small capitation rate towards repairing the highways leading into Cape Town, and what is called the lion and tiger money, a district rate originally levied to defray the expenses of exterminating those animals, but now devoted to the general exigencies of each division. At his farms he will rear his sheep, and his corn, perhaps, or obtain them readily in exchange for wine. Milch cows for his family, and occasionally poultry, are also among the comforts of his establishment.

The grain farmers, or corn boors, are also generally opulent, and assume the next rank in society to the wine boors. The most respectable of them live either in the Cape district, or the neighbouring parts of Stellenbosch and Drakenstein. They occupy loan farms, or such as are held by lease under government, and their parochial taxes are not more than those of the wine growers. They are a selfish and quarrelsome race. The eastern mode of treading out the corn by oxen is the substitute for threshing here. A great part of the straw is wasted; the chaff only and short straw of barley being preserved as fodder for horses. The wheat in the Cape district is fine and full in the ear, weighing from sixty to sixty-five pounds a bushel; a cargo sent to Mark-lane, on the capture of the Cape in 1795, fetched the highest price of the day.

The graziers are the lowest class of the colonists, and consist in many parts of the refuse of European society: of sailors who abandon their vessels, or deserters from the troops, who may have been stationed here, or have put in at the Cape. If they are fortunate enough to recommend themselves to a settled boor's family, and marry one of his daughters (which they frequently will), a few sheep and cattle are given them to begin the world with, and those who are steady sometimes attain considerable comforts.

The inhabitants of Cape Town are a very distinct race from most of those which we have described, and yet are intimately connected with all their pursuits. In addition to its importance as a capital, and as the chief market of redundant produce, Cape Town stands at present between the only two channels of exportation and importation, Table Bay and False Bay, and is the military key of the colony. Here, therefore, numerous agents of the boor's reside; and the koopman, or merchant, is a man of importance. While the phlegm and apathy of the Dutch character seldom appear more conspicuously than at this place, and nowhere so devoid of common industry, men of undoubted talent, intelligence, and integrity, are found at the head of this class. The mercantile advantages of Cape Town have been latterly, however, in some degree diverted to Simon's Town, a rising place, containing the naval arsenal of the colony, and about 150 neat houses on the shore of Simon's bay.

The established religion of the Cape colony is Calvinism or the reformed church; the ministers of which are a highly respected and respectable body of men, both in the town and country. All other sects are tolerated, but not directly countenanced or paid. The clergy are entitled in civil life to take place next to the president of the court of justice in town, and to the landrost in the country; and their widows are provided for for life. Education we regret to add is at a very low ebb in this capital, and throughout the colony.

The original discovery of the Cape of Good Hope is traced to Bartholomew Diaz, who with a small expedition fitted out by John II. of Portugal, five years before Columbus embarked on his first voyage, first discovered the Cape; but the weather-beaten condition of his ships, and the violence of the winds, compelled him to steer homewards, after denominating this promontory Cabo Tormentos, the Cape of Storms, or, as other writers state, Cabo dos todos Tormentos, the Cape of all Plagues. His royal master, however, directed it to be called The Cape of Good Hope; and is said to have deprived himself of sleep, to form plans for availing himself of its

advantages. A second expedition was despatched to these regions in the year 1497, when, on the 20th of November, Vasco de Gama successfully doubled the Cape, and coasted the eastern shores of Africa to Melinda, in Zanguebar. The following year the Portuguese admiral, Rio D'Infante, landed in this neighbourhood on a voyage to India, and gave his own name to what is now called the Great Fish River; where shortly afterwards the court of Portugal attempted to form a settlement. In 1500 the viceroy of Brasil, Francisco D'Almeyda, putting in here for provisions was repulsed; and, on attempting to head a reinforcement, was mortally wounded by a poisoned arrow. The revenge taken by his countrymen three years after, began the series of injuries which the tribes of this country have received from Europeans. A large piece of brass ordnance, loaded with missiles, was landed as a present to the natives, who had shown themselves extremely fond of brass, and they were drawing it by ropes ashore, when it was barbarously fired amongst the crowd, and made a dreadful slaughter. After this we hear no more of the Portuguese at the Cape, except as visiting it, in common with other nations trading to the east.

At the beginning of the seventeenth century, the Dutch East India Company turned their attention to the Cape as a permanent possession, and built a fort for their protection when there. Every ship bound to the east was provided with a stone on which her name and that of each of her principal officers were engraved; to these they were to add the date at which she touched at the Cape; and burying it in a particular spot with a tin box underneath, containing letters for Holland, the returning ships sought for it, and carried them home. The English afterwards adopted the same custom.

In 1620 Andrew Shilling and Humphrey Fitzherbert, commanders of vessels bound to the East Indies, hearing that the Dutch intended to establish a colony at the Cape in the following year, planted the British standard here, and took possession of it in the name of 'James, king of England,' because they 'thought it better that the Dutch or any other nation whatever should be his majesty's subjects in this place, than that his subjects should be subject to any other.' This sentiment seems to have been supported in no particular way by the government at home. In 1650 Van Riebeck, or Roebeck, a surgeon of a Dutch Indiaman, was equipped with every necessary for the settlement of himself and 100 followers, and appointed admiral and governor in chief at the Cape. He offered the natives a quantity of brass beads, toys, brandy and tobacco, worth 50,000 guilders, it is said, for the delivery of a certain portion of land which has since become the site of Cape Town. Women and more cautious adventurers now joined them from home, and we soon find them penetrating to the Salt River.

From 1659 to 1661 the new settlers were much annoyed by wars with the native tribes. At last, the native chiefs agreed to confirm to the Dutch three leagues of land round the fort, on condition that they should claim no more. And this is the only public attempt that seems to have been made against this colony by the Hottentots, during the whole period of its history.

Stellenbosch district was planted about the year 1609 by Governor Simon Vander Stel, who gave it his name, according to the authors of the Universal History; *i. e.* Stel—and Bosch or Bush, from the abundance of the shrubs in the neighbourhood. Some modern travellers suppose it to be derived from the stenbok, or antelope, which once abounded here. The same governor first organised a militia, and military board, for the defence of the colony. The vineyards of Constantia, also, were enclosed and settled by this spirited governor, and named after his wife, a lady who is honored by one remaining statue to her memory over the door of the mansion, and another over the cellar-door of the establishment. Simon's Bay and Valley appear likewise to owe their names to him.

The colony was for a long time subject to the governor of Batavia, through whom all the orders of the home government were sent; and it was directed that no two farms in the country should be established at less than three miles' distance from each other. No further events of importance occur in the history of the Cape, until the revolution of Holland at the close of the last century. This extended its influence to this remote settlement as early as 1795; and the British government fortunately resolved to take possession of the colony for the prince of Orange, at the very period when a convention had already been established, and was about to declare it a free and independent republic. A French force had been confidently expected, and the first determination of the public authorities was to hold out against the British attack, and to call out the burgher cavalry, who were to perform wonders against the enemy. Some few of them answered the summons. General Sir James Craig, at the head of about 1600 men, led on the attack, and brought his guns to bear, he quickly drove the Dutch within their lines, and a very few shots from our artillery decided the contest. In the middle of the night offers of capitulation were sent to the British commander, and the whole colony passed into our hands almost as easily as it had done into those of the Dutch. It was restored in full sovereignty to the Batavian republic, in March, 1803.

On the renewal of the war with France, and its dependencies, Great Britain did not fail to consider the Cape as an important point of attack upon the enemy; and seems to have awoke to the determination of holding it permanently. A well-appointed force of 5000 men, under Sir David Baird and Sir Home Popham, appeared before the town in January 1806, and were received by about equal numbers, under the command of the same governor to whom we had relinquished the colony. The two armies met in the plain at the foot of Table Mountain. The Highland brigade, under general Ferguson, led the attack, and the enemy retreated through a neighbouring defile to the mountains, when honorable terms were proposed, and agreed upon, for the cession of the place to the British troops. At the peace of Paris it was definitely recognised as a colony of Great Britain. See Barrow's

Travels in Southern Africa; Vaillant, Lichtenstein, and Campbell's Travels; and the Interesting Journal of the Rev. Mr. Latrobe's Visit to South Africa in 1815 *and* 1816.

CAPEL (Arthur, lord), a devoted and truly noble adherent of Charles I. was the son of Sir Henry Capel, Knt. on whose death he succeeded to the fortunes of his family. In 1640 he represented the county of Hertford in parliament, and voted in the first instance against the king's measures, and for the attainder of Stafford. Finding, however, the extravagance of the views of his party, he had the intrepidity to abandon it, and was soon advanced by Charles to the peerage by the title of lord Capel, of Hadham. He defended Colchester in 1649, against the parliamentary forces, but, being obliged to surrender to Fairfax, he was committed to the Tower, and, although at first he made his escape, being retaken, he was beheaded March 9th, 1649. Clarendon says he was a man in whom the malice of his enemies could find no fault, and that his friends might be well content with Cromwell's character of him.

CAPEL (Arthur), his son, was created earl of Essex at the Restoration, and employed as ambassador to Denmark. In 1679 he became, for a few months, first lord of the treasury. But, being accused of being concerned in the ryehouse plot, he was committed to the Tower in 1683. He was found a few days afterwards with his throat cut.

CAPELL (Edward), a celebrated dramatic critic, was born in Suffolk, and educated at Bury. The duke of Grafton bestowed on him the office of deputy inspector of plays, to which a salary is annexed of £200 a year. In 1745 he first projected an edition of Shakspeare, of the strictest accuracy, to be collated and published, in due time, ex fide codicum. He immediately proceeded to collect and compare the oldest and scarcest copies; noting the original excellencies and defects of the rarest quartos, and distinguishing the improvements or variations of the first, second, and third folios; and, after many years' labor, produced a very beautiful small octavo, in ten volumes, with an Introduction. In 1763 he published three large volumes in quarto, entitled Notes and Various Readings of Shakspeare; together with the School of Shakspeare, or Extracts from divers English books, that were in print in the Author's time; evidently showing from whence his several Fables were taken, and some parcel of his Dialogue. Also farther Extracts, which contribute to a due understanding of his Writings, or give a light to the History of his Life, or to the Dramatic History of his Time. Mr. Capell was also the editor of a volume of ancient poems, called Prolusions; and the Alteration of Antony and Cleopatra, as acted at Drury Lane, in 1758. He died January 24th, 1781.

CAPELLA, in astronomy, a bright fixed star in the left shoulder of the constellation Auriga.

CAPELLO (Bianca), a Venetian lady, of respectable family, and duchess of Tuscany, in the sixteenth century. Her father, Bart. Capello, a patrician of Venice, discountenancing an intrigue into which she fell in early life, she left her native city in company with her paramour, Bonaventure. She was pregnant, and the lovers married at Florence. Here the uncommon beauty of her person soon attracted the attentions of Francis, son of Cosmo de Medici, the reigning duke of Tuscany; the husband consenting to his own dishonor, was advanced; and he being assassinated in the course of a new intrigue, Bianca became the avowed mistress of Francis. She is said at this time to have feigned a second pregnancy, and to have imposed the purchased child of some poor parents on her admirer as his own son. Ultimately, on the death of the wife of Francis, and his accession to the ducal throne, she induced the republic of Venice to acknowledge her as 'a daughter of the state,' and was publicly married, and installed duchess of Tuscany in 1579. This elevated station she occupied nearly nine years, to the great disgust of the other members of the Medicean family, and died within two days of her husband (not without the suspicion of both being poisoned), in October, 1587. His successor would not suffer her remains to be buried in the family vault, and procured the illegitimacy of her child to be publicly recorded.

CAPELLUS (Lewis), an eminent French Protestant divine, born at Sedan about 1579. He was author of some learned works; but is chiefly known from the controversy he engaged in with the younger Buxtorf, concerning the antiquity of the Hebrew points, which Capellus undertook to disprove. His Critica Sacra was also an elaborate work, and excited some disputes. He died in 1658, having made an abridgement of his life in his work De gente Capellorum. He was also the author of Historia Illustrata; Templi Hierosolymetani Delineatio Triplex; De Critica Nuper se Edita; Ad Novem Davidis Lyram Animadversiones; Cronologia Sacra; Diatriba de Verio et Antiquis Ebræorum Literis; Spicilegium Post Messem.

CA'PER, *v.* & *n.*
CA'PERER, *n.*
CA'PER-CUTTING, *n.*
} Fr. *capriole*; Ital. *capriola*; from the Lat. *caper*, a goat. A leap; a jump; a skip. The verb is expressive of dancing sportively; skipping merrily; 'like the leaping and springing up of goates, when they leape and play,' says Minsheu. It is also used as a contemptuous designation of dancing; as is the word caperer for a dancer. To cut a caper is to leap up with a dance-like motion. The Italians have an equivalent phrase, *tagliar le capriole*, which is translated by to caper, to prance. A caper, Fr. *capre*; Dutch, *kapre*; was once the designation of a privateer, or pirate-ship; perhaps from the quickness and desultoriness of its motions.

> We, that are true lovers, run into strange *capers*; but as all is mortal in nature, so is all nature in love mortal in folly. *Shakspeare. As you like it.*

> The truth is, I am old in judgment; and he that will *caper* with me for a thousand marks, let him lend me the money, and have at him. *Id. Henry IV.*

> Our master
> *Capering* to eye her. *Id. Tempest.*

> His nimble hand's instinct then taught each string
> A *capering* cheerfulness, and made them sing
> To their own dance. *Crashaw.*

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The tumbler's gambols some delight afford;
No less the nimble *caperer* on the cord:
But these are still insipid stuff to thee,
Cooped in a ship, and tossed upon the sea.
Dryden's Juvenal.

Flimnap, the treasurer, is allowed to cut a *caper*, on the strait rope, at least an inch higher than any other lord in the whole empire. *Swift's Gulliver.*

The family tript it about, and *capered* like hail stones bounding from a marble floor. *Arbuthnot's John Bull.*

The stage would need no force, nor song, nor dance,
Nor *capering* monsieur from active France. *Rowe.*

Ca'per, *n.* } Fr. *capre*, Lat. *capparis*; Ca'per-bush, } Κάππαρις. An acid pickle, made of the flower-buds of a shrub. The word is always used in the plural, except when it forms a compound with another word, as in caper-sauce. See Capparis.

We invent new sauces and pickles, which resemble the animal ferment in taste and virtue, as mangoes, olives, and *capers*. *Floyer.*

Caper, in shipping, a vessel used by the Dutch for cruising and taking vessels from the enemy; in which sense, caper amounts to the same with privateer. Capers are commonly double officered, and crowded with hands even beyond the rates of ships of war, because the thing chiefly in view is boarding the enemies.

Caper Bean. See Zygophyllum.

CAPERNAUM, a city celebrated in the gospels, being the place where Jesus usually resided during the time of his ministry. This city is no where mentioned in the Old Testament under this or any other name; and therefore it is probable that it was built after the return from the Babylonish captivity. It stood on the coast of Galilee, in the borders of Zebulon and Nephthalim (Matt. iv. 15), and took its name from an adjacent spring, which probably was an inducement to build the town in the place where it stood. Capernaum was said by our Lord himself to be exalted unto heaven; but, because its inhabitants made no right use of the privileges they enjoyed, he denounced that it should be brought down to hell (Matt. xi. 23), which has certainly been verified: for, as Dr. Wells observes, so far is it from being the metropolis of all Galilee, as it once was, that it consisted long ago of no more than six poor cottages.

CAPEROLANS, a congregation of religious in Italy, so called from Peter Caperole, their founder, in the fifteenth century. The Milanese and Venetians being at war, the enmity occasioned thereby spread itself to the very cloisters. The superiors of minor brothers, of the province of Milan, which extended itself as far as the territories of the republic of Venice, carried it so haughtily over the Venetians, that those of the convent of Brescia resolved to shake off a yoke which was grown insupportable to them. The superiors, informed of this, expelled the principal authors of this design; viz. Peter Caperole, Matthew de Thareillo, and Bonaventure of Brescia. Peter Caperole, a man of an enterprising genius, found means to separate the convents of Brescia, Bergamo, and Cremona, from the province of Milan. This occasioned a law-suit between the vicar general and these convents, which was determined in favor of the latter; and in 1475, by the authority of Pope Sixtus IV. they were erected into a distinct vicariate, under the title of that of Brescia. This not satisfying the ambition of Caperole, he obtained, by the interposition of the Doge of Venice, that this vicariate might be erected into a congregation; called from him Caperolans.

CAPH, a Jewish measure of capacity for things, estimated by Kimchi at the thirtieth part of the log, by Arbuthnot at the sixteenth part of the hin, or thirty-second of the seah, amounting to ⅝ of an English pint. It does not occur in Scripture as the name of any measure.

CAPHAR, a duty which the Turks exact from the Christians who carry or send merchandises from Aleppo to Jerusalem and other places in Syria. This duty was first imposed by the Christians themselves, when they were in possession of the Holy Land, for the maintenance of the troops which were planted in difficult passes, to observe the Arabs and prevent their incursions. It is still continued, and much increased by the Turks, under pretence of defending the Christians against the Arabs; with whom, nevertheless, they keep a secret intelligence, favoring their excursions and plunders.

CAPI-AGA, or Capi-Agassi, a Turkish officer, governor of the gates of the seraglio, or grand master of the seraglio. He enjoys the first dignity among the white eunuchs: he is always near the person of the grand seignior: he introduces ambassadors to their audience: nobody enters or goes out of the grand seignior's apartment but by his means. He has the privilege of wearing the turban in the seraglio, and of going everywhere on horseback. He accompanies the grand seignior to the apartment of the sultanas, but stops at the door without entering. The grand seignior bears the expense of his table, and allows him at the rate of about fifty shillings per day: but his office brings him in abundance of presents; no affair of consequence coming to the emperor's knowledge without passing through his hand. He cannot be bashaw when he quits his post.

CAPIAS. A writ of two sorts, one before judgment, called capias ad respondendum, in an action personal, if the sheriff, upon the first writ of distress, return that he has no effects in his jurisdiction. The other is a writ of execution after judgment.

Capias ad Respondendum is where an original is issued out, to take the defendant, and make him answer the plaintiff.

Capias, after judgment, is of divers kinds, such as,

Capias ad Satisfaciendum, a writ of execution that issues on a judgment obtained, and lies where any person recovers in a personal action, as for debt, damages, &c. in which cases this writ issues to the sheriff, commanding him to take the body of him against whom the debt is recovered, who is to be kept in prison till he make satisfaction.

Capias in Withernam, a writ that lies for cattle in Withernam: that is, where a distress taken is driven out of the country, so that the sheriff cannot make deliverance upon a replevin; then this writ issues, commanding the sheriff to take as many beasts of the distrainer, &c.

Capias pro Fine is a writ lying where a person is fined to the king, for some offence committed against a statute, and he does not discharge the fine according to the judgment; therefore his body shall be taken by this writ, and committed to gaol till the fine is paid.

Capias ut Legatum, a writ which lies against any one outlawed, upon any action personal or criminal, by which the sheriff is ordered to apprehend the party outlawed, for not appearing on the exigent, and keep him in safe custody till the day of his return, when he is to present him to the court, to be there farther ordered for his contempt.

CAPIGI, Turk. i. e. gate, a door-keeper of the Turkish seraglio. There are about 500 capigis in the seraglio, divided into two companies; one consisting of 300, under a chief called Capigi-bassa, who has a stipend of three ducats per day; the other consists of 200, called Cuccicapigi, and their chief Cuccicapigi-bassa, who has two ducats. The capigis have from seven to fifteen aspers per day. Their business is to assist the janissaries in the guard of the first and second gates of the seraglio; sometimes all together, as when the Turk holds a general council, receives an ambassador, or goes to the mosque; and sometimes only in part, being ranged on either side to prevent people entering with arms, tumults being made, &c.

CAPILLA'CEOUS, *adj.*
Capil'lament, *n.*
Capil'lary, *n.* & *adj.*
Capilla'tion, *n.*
Capil'lature, *n.*

Lat. *capillus*, quasi *capitis pilus*, from πιλος Hairy; hair-like; in delicate filaments. Capillary is most commonly applied to the fibres of plants, and the minute vessels of bodies. Mineralogists also apply it to ores which shoot out thread-like branches. Capillaceous is the same with capillary, when the latter is used as an adjective. Capillation is obsolete. Capillature, Bailey defines to be, a bush of hair, a frizzling of the hair. This word also is disused.

> Our common hyssop is not the least of vegetables, nor observed to grow upon walls; but rather, some kind of *capillaries*, which are very small plants, and only grow upon walls and stony places.
>
> *Brown's Vulgar Errours.*

> Nor is the humour contained in smaller veins, or obscure *capillations*, but in a vesicle. *Id.*

> Ten *capillary* arteries in some parts of the body, as in the brain, are not equal to one hair; and the smallest lymphatic vessels are an hundred times smaller than the smallest *capillary* artery.
>
> *Arbuthnot on Aliments.*

> *Capillary* or *capillaceous* plants, are such as have no main stalk or stem, but grow to the ground, as hairs on the head; and which bear their seeds in little tufts or protuberances on the backside of their leaves.
>
> *Quincy.*

> Those small threads, or hairs, which grow up in the middle of a flower, and adorned with little knobs at the top, are called *capillaments*. *Id.*

CAPILLAIRE, *n.* Fr. Genuine capillaire is a syrup of adiantum but in this country it is frequently made of water, orange flower water, eggs and sugar. A few spoonsful of it in water, either with or without the addition of orgeat, makes a pleasant beverage.

Capillaments in a general sense, signifies a hair; whence the word is applied to several things, which on account of their length or their fineness resemble hairs: as,

Capillaments of the Nerves, in anatomy, the fine fibres or filaments whereof the nerves are composed.

CAPILLARIS, or **Capillata, Arbor**, an ancient tree at Rome, on which the vestal virgins, when shaven for their office, hung up their hair, and consecrated it to the gods.

Capillary Tubes. See **Tubes, Capillary.**

CAPILLUS Veneris. See **Adiantum.**

CAPISCHOLUS, or **Capiscolus**, in ecclesiastical writers, denotes an officer in certain cathedrals, who had the superintendency of the choir, or band of music, answering to what in other churches is called chanter or precentor. The word is also written cabiscolus, and caput-scholæ, q. d. the head of the school, or band of music. The office is also called scolasticus, as having the instruction of the young clerks and choristers, how to perform their duty.

CAPITA, Distribution by, in law, signifies the appointing to every man an equal share of a personal estate; when all the claimants claim in their own rights, as in equal degrees of kindred, and not jure representationis.

Capita, Succession by, where the claimants are next in degree to the ancestor, in their own right, and not by right of representation.

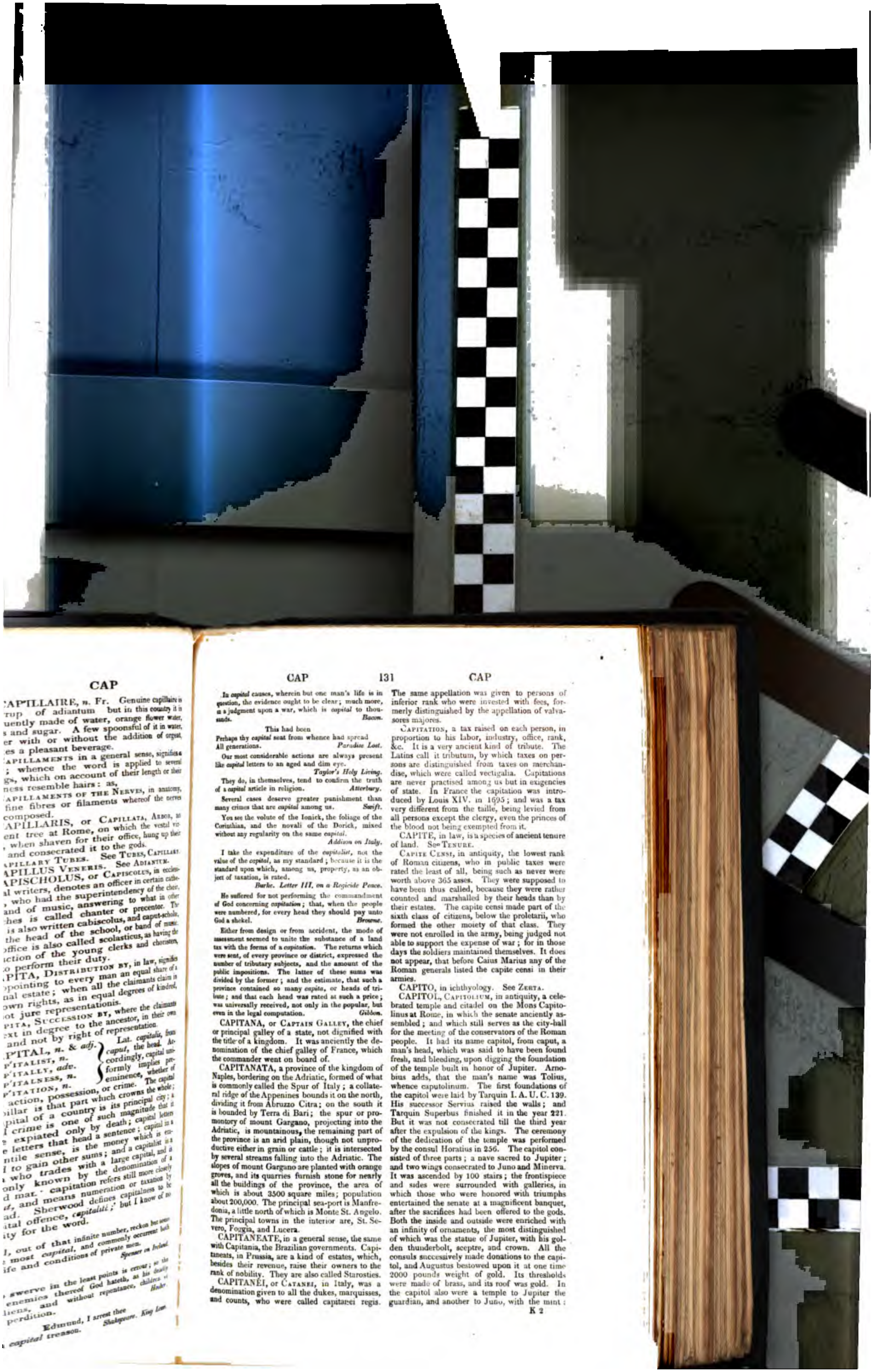
CAP'ITAL, *n.* & *adj.*
Cap'italist, *n.*
Cap'itally, *adv.*
Cap'italness, *n.*
Capita'tion, *n.*

Lat. *capitalis*, from *caput*, the head. Accordingly, capital uniformly implies pre-eminence, whether of place, action, possession, or crime. The capital of a pillar is that part which crowns the whole; the capital of a country is its principal city; a capital crime is one of such magnitude that it can be expiated only by death; capital letters are the letters that head a sentence; capital in a mercantile sense, is the money which is employed to gain other sums; and a capitalist is a person who trades with a large capital, and is commonly known by the denomination of a monied man: capitation refers still more closely to *caput*, and means numeration or taxation by the head. Sherwood defines capitalness to be 'a capital offence, *capitalité*;' but I know of no authority for the word.

> I will, out of that infinite number, reckon but some that are most *capital*, and commonly occurrent both in the life and conditions of private men.
>
> *Spenser on Ireland.*

> As to swerve in the least points is errour; so the *capital* enemies thereof God hateth, as his deadly foes, aliens, and without repentance, children of endless perdition. *Hooker.*

> Edmund, I arrest thee
> On *capital* treason. *Shakespeare. King Lear.*



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a *capital* treason. *Shakspeare. King Lear.*

In *capital* causes, wherein but one man's life is in question, the evidence ought to be clear; much more, in a judgment upon a war, which is *capital* to thousands. *Bacon.*

This had been
Perhaps thy *capital* seat from whence had spread
All generations. *Paradise Lost.*

Our most considerable actions are always present like *capital* letters to an aged and dim eye.
Taylor's Holy Living.

They do, in themselves, tend to confirm the truth of a *capital* article in religion. *Atterbury.*

Several cases deserve greater punishment than many crimes that are *capital* among us. *Swift.*

You see the volute of the Ionick, the foliage of the Corinthian, and the novali of the Dorick, mixed without any regularity on the same *capital*.
Addison on Italy.

I take the expenditure of the *capitalist*, not the value of the *capital*, as my standard; because it is the standard upon which, among us, property, as an object of taxation, is rated.
Burke. Letter III, on a Regicide Peace.

He suffered for not performing the commandment of God concerning *capitation*; that, when the people were numbered, for every head they should pay unto God a shekel. *Browne.*

Either from design or from accident, the mode of assessment seemed to unite the substance of a land tax with the forms of a *capitation*. The returns which were sent, of every province or district, expressed the number of tributary subjects, and the amount of the public impositions. The latter of these sums was divided by the former; and the estimate, that such a province contained so many *capita*, or heads of tribute; and that each head was rated at such a price; was universally received, not only in the popular, but even in the legal computation. *Gibbon.*

CAPITANA, or CAPTAIN GALLEY, the chief or principal galley of a state, not dignified with the title of a kingdom. It was anciently the denomination of the chief galley of France, which the commander went on board of.

CAPITANATA, a province of the kingdom of Naples, bordering on the Adriatic, formed of what is commonly called the Spur of Italy; a collateral ridge of the Appenines bounds it on the north, dividing it from Abruzzo Citra; on the south it is bounded by Terra di Bari; the spur or promontory of mount Gargano, projecting into the Adriatic, is mountainous, the remaining part of the province is an arid plain, though not unproductive either in grain or cattle; it is intersected by several streams falling into the Adriatic. The slopes of mount Gargano are planted with orange groves, and its quarries furnish stone for nearly all the buildings of the province, the area of which is about 3500 square miles; population about 200,000. The principal sea-port is Manfredonia, a little north of which is Monte St. Angelo. The principal towns in the interior are, St. Severo, Foggia, and Lucera.

CAPITANEATE, in a general sense, the same with Capitania, the Brazilian governments. Capitaneats, in Prussia, are a kind of estates, which, besides their revenue, raise their owners to the rank of nobility. They are also called Starosties.

CAPITANEI, or CATANEI, in Italy, was a denomination given to all the dukes, marquisses, and counts, who were called capitanei regis. The same appellation was given to persons of inferior rank who were invested with fees, formerly distinguished by the appellation of valvasores majores.

CAPITATION, a tax raised on each person, in proportion to his labor, industry, office, rank, &c. It is a very ancient kind of tribute. The Latins call it tributum, by which taxes on persons are distinguished from taxes on merchandise, which were called vectigalia. Capitations are never practised among us but in exigencies of state. In France the capitation was introduced by Louis XIV. in 1695; and was a tax very different from the taille, being levied from all persons except the clergy, even the princes of the blood not being exempted from it.

CAPITE, in law, is a species of ancient tenure of land. See TENURE.

CAPITE CENSI, in antiquity, the lowest rank of Roman citizens, who in public taxes were rated the least of all, being such as never were worth above 365 asses. They were supposed to have been thus called, because they were rather counted and marshalled by their heads than by their estates. The capite censi made part of the sixth class of citizens, below the proletarii, who formed the other moiety of that class. They were not enrolled in the army, being judged not able to support the expense of war; for in those days the soldiers maintained themselves. It does not appear, that before Caius Marius any of the Roman generals listed the capite censi in their armies.

CAPITO, in ichthyology. See ZERTA.

CAPITOL, CAPITOLIUM, in antiquity, a celebrated temple and citadel on the Mons Capitolinus at Rome, in which the senate anciently assembled; and which still serves as the city-hall for the meeting of the conservators of the Roman people. It had its name capitol, from caput, a man's head, which was said to have been found fresh, and bleeding, upon digging the foundation of the temple built in honor of Jupiter. Arnobius adds, that the man's name was Tolius, whence caputolinum. The first foundations of the capitol were laid by Tarquin I. A. U. C. 139. His successor Servius raised the walls; and Tarquin Superbus finished it in the year 221. But it was not consecrated till the third year after the expulsion of the kings. The ceremony of the dedication of the temple was performed by the consul Horatius in 256. The capitol consisted of three parts; a nave sacred to Jupiter; and two wings consecrated to Juno and Minerva. It was ascended by 100 stairs; the frontispiece and sides were surrounded with galleries, in which those who were honored with triumphs entertained the senate at a magnificent banquet, after the sacrifices had been offered to the gods. Both the inside and outside were enriched with an infinity of ornaments, the most distinguished of which was the statue of Jupiter, with his golden thunderbolt, sceptre, and crown. All the consuls successively made donations to the capitol, and Augustus bestowed upon it at one time 2000 pounds weight of gold. Its thresholds were made of brass, and its roof was gold. In the capitol also were a temple to Jupiter the guardian, and another to Juno, with the mint:

and on the descent of the hill was the temple of Concord. This beautiful edifice contained the most sacred deposits, such as the ancylia, the books of the Sibyls, &c. The capitol was burnt during the civil war of Marius, and Sylla rebuilt it, but died before the dedication, which was performed by Q. Catulus. It was again burnt by Vitellius, and rebuilt by Vespasian. It was burnt a third time by lightning under Titus, and restored by Domitian, who spent 12,000 talents in the gilding only.

Capitol was also a name anciently applied to all the principal temples, in most of the colonies throughout the Roman Empire; as at Constantinople, Jerusalem, Carthage, Ravenna, Capua, &c.

CAPITOLINE Games, annual games instituted by Camillus, in honor of Jupiter Capitolinus, and in commemoration of the capitol not being taken by the Gauls. Plutarch tells us, that a part of the ceremony consisted in the public crier putting up the Hetrurians to sale by auction; they also took an old man, and, tying a golden bulla about his neck, exposed him to the public derision. Festus says they also dressed him in a pretexta. There was another kind of Capitoline games, instituted by Domitian, wherein there were rewards and crowns bestowed on the poets, champions, orators, historians and musicians. These last were celebrated every five years, and became so famous, that instead of calculating time by lustra, they began to count by Capitoline games, as the Greeks did by Olympiads. However, this custom was not of long continuance.

CAPITOLINI, in Roman antiquity, a college of men residing in the capitol, to whom was committed the care of the Capitoline games.

CAPITOLINUS (Mons), in the history of architecture, one of the seven hills of Rome, anciently called Saturnius as the residence of Saturn, and Tarpeius from the maid who betrayed it to the Sabines. It is believed to have been first enclosed when Romulus admitted Titus Tatius into the partnership of his throne; and then to have been decorated with a temple of Jupiter Feretrius. The thatched cottage of their first king, which crowned the Capitoline Mount, was long an object of veneration to the Romans. It is mentioned by Vitruvius in the reign of Augustus, and still later by Lactantius and Macrobius in the fourth century.

CAPITOUL, or Capitol, an appellation given formerly to the chief magistrates of Toulouse, who had the administration of justice and policy in the city. They were much the same with the consuls, bailiffs, burgo-masters, mayors, and aldermen, &c. in other cities. In ancient acts they were called consules capitularii, or capitolini, and their body capitulum. They had the custody of the town-house, which was anciently called capitol. The office only lasted one year, ennobled the bearers, and entitled them to the jus imaginum, i. e. when their administration expired their pictures were hung up in the town-house.

Capitular, or Capitulary, denotes an act passed in a chapter, either of knights, canons, or religious. The capitular of Charlemagne, Charles the Bald, &c. are the laws, both ecclesiastical an civil, made by those emperors in the general assemblies of the people; which was the way in which the constitutions of most of the ancient princes were made: each person present, though a plebeian, setting his hand to them. They had their name from being divided into capitula, chapters, or sections. In these capitulars did the whole French jurisprudence anciently consist.

CAPIT'ULATE, *v.*
Capitula'tion, *n.*
Capit'ulator, *n*,
Capit'ular, *n.*
Capit'ularly, *adv.*
Capit'ulary, *adj.*
Capi'tile, *n.*

These seem to be all derived from *caput*, the head; though some would deduce the first three from *capio*. To capitulate, is to surrender; and, in the ordinary acceptation, a capitulation is the terms on which the surrender is made. Of the latter word, however, there is another use, confined to the German empire; and denoting the contract made by the emperor with the electors. In the quotation from Shakspeare, the word capitulate is defined by Johnson, 'drawing up anything in heads or articles;' but Stevens, more probably interprets it as 'making head.' Capitular signifies both a member of a chapter and the body of the statutes of a chapter; and capitularly implies convened as an ecclesiastical chapter. Wicliffe, in his bible, uses capitile in the sense of the sum, the substance, the heads.

The king took it as a great indignity, that thieves should offer to *capitulate* with him as enemies.
Hayward.

Percy, Northumberland,
The archbishop of York, Douglas, and Mortimer,
Capitulate against us, and are up.
Shakspeare. Henry IV.

It was not a complete conquest, but rather a dedition upon terms and *capitulations*, agreed between the conqueror and the conquered; wherein, usually, the yielding party secured to themselves their law and religion. *Hale.*

I still pursued, and, about two o'clock this afternoon, she thought fit to *capitulate*. *Spectator.*

The Nadhirites were more guilty, since they conspired in a friendly interview to assassinate the prophet. He besieged their castle, three miles from Medina, but their resolute defence obtained an honorable *capitulation*, and the garrison, sounding their trumpets and beating their drums, was permitted to depart with the honors of war. *Gibbon.*

That this practice continued till the time of Charlemain, appears by a constitution in his *capitular*.
Taylor.

The nuns of St. Ursula acted the wisest;—they never attempted to go to bed at all. The dean of Strasburg, the prebendaries, the *capitulars* and domiciliars (*capitularly* assembled in the morning to consider the case of buttered buns) all wished they had followed the nuns of St. Ursula's example.
Sterne. Slawkenburgius's Tale.

Canonists do agree, that the chapter makes decrees and statutes, which shall bind the chapter itself, and all its members or *capitulars*.
Ayliffe.

Capitulation, in military affairs has been used both in ancient and modern warfare, to signify a treaty made between the inhabitants of a place besieged and the besiegers, for the delivering up the place on certain conditions. The most honorable terms of capitulation are,

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march out at the breach with arms and baggage, drums beating, colors flying, a match lighted at both ends, and some pieces of cannon, waggons, and convoys for their baggage, and for their sick and wounded.

CAPITULUM, in ecclesiastical writers, denoted part of a chapter of the Bible read and explained; whence ire ad capitulum, to go to such a lecture. Afterwards the place where such exercises were performed was named domus capituli.

CAPITULUM, in the ancient military art, was a transverse beam, wherein were holes through which passed the strings, whereby the arms of huge engines, as balistæ, catapultæ, and scorpions, were played, or worked.

CAPNICON, chimney money, a tax which the eastern emperors levied for smoke, and which of consequence was due from all, even the poorest, who kept a fire. It was first exacted by Nicephorus.

CAPNOMANCY; from καπνος, smoke, and μαντεια, divination; a kind of divination by means of smoke, used by the ancients in their sacrifices. The general rule was, when the smoke was thin and light, and rose straight up, it was a good omen: if the contrary, it was an ill one. There was also a species of capnomancy, consisting in the observation of the smoke rising from poppy and jessamine seed, cast upon lighted coals.

CAPO D'ISTRIA, a town and fortress of Venetian Istria, on the east side of the gulf of Trieste. The town is seated on a small island, connected with the main land by a draw bridge and causeway, about half a mile in length. It is the see of a bishop, and has a cathedral and several other churches and religious houses; the population is about 5000, and their chief support is derived from salt and wine; the former is exported in large quantities. It is twelve miles due south of Trieste, in the latitude of 45° 4′ N. and 14° E. long.

CAPOC, in commerce, a sort of cotton so fine and so short that it cannot be spun. It is used in the East Indies to line palanquins, to make beds, mattrasses, cushions, pillows, &c.

CAPO'CHE, *v.*
CAPU'UCH, *n.*
CAPU'CH, *n.*
CAPU'CHED, *adj.*
CAPUCHI'N, *n.*

Fr. *capuce*, *capuchon*; Ital. *cappuccio*; a monk's cowl or hood; the cape of a cloak; capuchin is a female garment, consisting of a hood, and takes its name from its resemblance to the dress of the capuchin monks. Capuched signifies covered over as with a hood. Johnson declares himself unable to form a distinct idea of the meaning of the word capoched, but supposes that it may stand for stripped of the hood. May it not mean blinded them with their own hoods?

Capoched your rabbins of the synod,
And snapped their canons with a Why not?
Grave synod, men that were revered
For solid face and length of beard. *Hudibras.*

They are differently cucullated and *capuched* upon the head and back; and, in the cicada, the eyes are more prominent. *Browne's Vulgar Errours.*

He wore a little brown *capouch*, girt very near to his body with a white towel.
Shelton. Translation of Don Quixote.

CA'PON, *v.* & *n.*
CA'PONET, *n.*
CA'PONISE, *v.*
CA'PON-FASHION.

Lat. *capo*; Fr. *chapon*; Ital. *capone*; Swed. *kapun*; Dan. *capun*; Ger. *kapphan*; Dut. *kapoen*. A castrated cock. The term is also applied in ridicule to an effeminate fellow. Birch uses the verb to capon; and Daines Barrington, in his paper on singing birds, has to caponise, which is, probably of his own formation, as there appears no other authority Capon-fashion was an expression of archers, descriptive of the steel of an arrow, when it was short-breasted, and big towards the head.

And eke there was a polkat in his hawe,
That, as he sayd, his *capons* had yslawe;
And feyn he wolde him wreken, if he might,
Of vermine that destroied hem by night.
Chaucer's Canterbury Tales.

And then the justice,
Its fair round belly, with good *capon* lined.
Shakspeare. As You Like It.

Yet must he hunt his greedy landlord's hall,
With ofton presents at each festival:
With crammed *capons* every new year's morne,
Or with green cheeses when his sheep are shorne.
Hall.

All come in, the farmer and the clown;
And no one empty-hand, to salute
Thy lord and lady, though they have no suit.
Some bring a *capon*, some a rural cake,
Some nuts, some apples. *Ben Johnson.*

Muley Hamet, king of Fez and Morocco, spent three pounds on the sauce of a *capon*: it is nothing in our times: we scorn all that is cheap.
Burton. Anat. of Mel.

In good roast beef my landlord sticks his knife;
The *capon* fat delights his dainty wife.
Gay. Pastoral I.

CAPO'T, *v.* & *n.* Fr. To win all the tricks on the cards at the game of picquet.

CAPPADINE, in commerce, a sort of silk flock, taken from the upper part of the silk worm pod, after the true silk has been wound off. Slight stuffs called lassis and carbass, are made of it.

CAPPADOCIA, an ancient kingdom of Asia, comprehending all that country which lies between Mount Taurus and the Euxine Sea. It was divided by the Persians into two satrapies or governments; by the Macedonians into two kingdoms, viz.:

1. CAPPADOCIA AD PONTUM, more commonly called Pontus. See PONTUS.

2. CAPPADOCIA AD TAURUM, CAPPADOCIA MAGNA, or CAPPADOCIA properly so called, in ancient geography, a country lying between 38° and 41° N. latitude. It was bounded by Pontus on the north; Lycaonia and part of Armenia Major on the south; Galatia on the west; and by Euphrates and part of Armenia Minor on the east. The first king of Cappadocia, of whom we read, was Pharnaces, raised to the crown by Cyrus, who gave him his sister, Atossa, in marriage. He was killed in a war with the Hyrcanians. After him came a succession of eight kings, of whom we only know that they continued faithful to the Persian interest. In the time of Alexander the Great, Cappadocia was governed by Ariarathes II. who, notwithstanding the vast conquests of the Macedonian monarch,

also continued in alliance with Persia. Death prevented Alexander from invading his dominions; but Perdiccas, marching against him with a powerful and well-disciplined army, dispersed his forces, and having taken Ariarathes himself prisoner, crucified him, with all those of the royal blood whom he could get into his power. Diodorus, however, says that he was killed in the battle. He is said to have reigned eighty-two years. His son Ariarathes III. having escaped the general slaughter, fled into Armenia, where he was concealed, till the dissensions among the Macedonians gave him an opportunity of recovering his kingdom. Amyntas, governor of Cappadocia, opposed him; but, being defeated in a pitched battle, the Macedonians were obliged to abandon all the strong-holds. Ariarathes, after a long and peaceable reign, left his kingdom to his son Ariaramnes II. who applied himself more to the arts of peace than war, in consequence of which Cappadocia flourished greatly during his reign. He was succeeded by Ariarathes IV. his son, who proved a very warlike prince, and having overcome Arsaces, founder of the Parthian monarchy, considerably enlarged his dominions. His successor, Ariarathes V. married the daughter of Antiochus the Great, and entered into an alliance with that prince against the Romans; but Antiochus being defeated, Ariarathes was obliged to sue for peace, which he obtained, upon paying a fine of 2000 talents. He afterwards assisted the republic with men and money against Perseus, king of Macedon, on which account he was by the senate honored with the title of the 'friend and ally of the Roman people.' He left the kingdom in a very flourishing condition to his son Mithridates, who, on his accession, took the name of Ariarathes VI. This prince (surnamed Philopater, from the filial respect and love he showed his father from his infancy), immediately renewed the alliance with Rome. He restored Mithrobarzanes, son to Ladriades, king of the Lesser Armenia, to his father's kingdom, though he foresaw that the Armenians would lay hold of that opportunity to join Artaxias, who was then on the point of invading Cappadocia, and presented the senate of Rome with a golden crown, in acknowledgment of their assistance at this time. The senate, in return, sent him a staff and chair of ivory, which were presents usually bestowed on those only whom they looked upon as attached to their interest. Not long before this, Demetrius Soter, king of Syria, unsuccessfully invaded his dominions, and set up a rival pretender to the throne, one Orophernes, a supposed son of the late king. The senate now decreed that Ariarathes and he should reign as partners; but next year his rival was driven out, and Ariarathes, being restored, demanded of the Priennians 400 talents of gold, which Orophernes had deposited with them. They replied, 'that, as they had been trusted with the money by Orophernes, they could deliver it to none but himself, or such as came in his name.' Upon this the king ravaged their territory with an army. The Priennians, however, though besieged by the united forces of Ariarathes and Attalus, not only made an obstinate defence, but found means to restore the money to Orophernes. At last they applied to the Romans for assistance, who enjoined the two kings to raise the siege. Ariarathes immediately obeyed, and marching his army into Assyria, joined Alexander Balas against Demetrius, who, in the very first engagement was slain, and his army entirely dispersed; Ariarathes having on that occasion given uncommon proofs of his courage and conduct. Some years after, a war breaking out between the Romans and Aristonicus, who claimed the kingdom of Pergamus in right of his father, Ariarathes joined the former, and was slain in the same battle in which P. Crassus, proconsul of Asia, was taken, and the Roman army cut in pieces. He left six sons by his wife, Laodice, on whom the Romans bestowed Lycaonia and Cilicia. But Laodice, fearing lest her children, when they came of age, should take the government out of her hands, poisoned five of them, the youngest only having escaped her cruelty by being conveyed out of the kingdom. The monster herself was soon after put to death by her subjects. She was succeeded by Ariarathes VII. who, soon after his accession, married another Laodice, daughter of Mithridates the Great, hoping to find in that prince a powerful friend to support him against Nicomedes, king of Bithynia, who laid claim to part of Cappadocia. But Mithridates, instead of assisting, procured one Gordius to poison his son-in-law; and on his death seized the kingdom under pretence of maintaining the rights of the Cappadocians against Nicomedes, till the children of Ariarathes were in a condition to govern it. The Cappadocians at first fancied themselves obliged to their new protector; but, finding him unwilling to resign the kingdom to the lawful heir, they rose up in arms, and driving out all his garrisons, placed Ariarathes VIII. eldest son of their deceased king, on the throne. The new prince now found himself immediately engaged in war with Nicomedes; but, being assisted by Mithridates, not only drove him out of Cappadocia, but stripped him of a great part of his hereditary dominions. On the conclusion of the peace, Mithridates seeking for some pretence to quarrel with Ariarathes, insisted upon his recalling Gordius, who had murdered his father; which being rejected with abhorrence, a war ensued. Mithridates took the field first, in hopes of over-running Cappadocia before Ariarathes could be in a condition to make head against him; but, contrary to his expectation, he was met on the frontiers by the king of Cappadocia, with an army no way inferior to his own. Hereupon he invited Ariarathes to a conference; and in sight of both armies stabbed him with a dagger, which he had concealed under his garment. This struck such terror into the Cappadocians, that they immediately dispersed, and gave Mithridates an opportunity of possessing himself of the kingdom without the least opposition. The Cappadocians, however, not able to endure the tyranny of his prefects, soon shook off the yoke; and recalling the king's brother, who had fled into the province of Asia, proclaimed him king. He was scarcely seated on the throne, however, before Mithridates invaded the kingdom at the

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head of a very numerous army, and, having drawn Ariarathes to a battle, defeated his army with great slaughter, and obliged him to abandon the kingdom. The unhappy prince soon after died of grief, and Mithridates bestowed the kingdom on his own son, who was then only eight years old, giving him at the same time the name of Ariarathes X. Cappadocia passed through various struggles for and with their Roman allies, till the reign of Ariobarzanes II. who proved no less faithful to the Romans than his predecessors. On the breaking out of the civil war between Cæsar and Pompey, he sided with the latter; but after the death of Pompey, was received into favor by Cæsar, who bestowed upon him great part of Armenia. While Cæsar was engaged in a war with the Egyptians, Pharnaces, king of Pontus, invaded Cappadocia, and stripped Ariobarzanes of all his dominions; but Cæsar, having defeated Pharnaces, restored the king of Cappadocia, and honored him with new titles of friendship. After the murder of Cæsar, Ariobarzanes, having refused to join Brutus and Cassius, was by them declared an enemy to the republic, and soon after taken prisoner and put to death. He was succeeded by his brother, Ariobarzanes III. who was by Marc Antony deprived both of his kingdom and life; and in him ended the family of Ariobarzanes. Archelaus, the grandson of that general of the same name, who commanded against Sylla in the Mithridatic war, was by Marc Antony placed on the throne of Cappadocia, though nowise related either to the family of Pharnaces or Ariobarzanes. His preferment was entirely owing to his mother, Glaphyra, a woman of great beauty, but of loose behaviour, who, in return for her compliance with the desires of Antony, obtained the kingdom of Cappadocia for her son. In the war between Augustus and Antony, he joined the latter; but, at the intercession of the Cappadocians, was pardoned by the emperor. He afterwards received from him Armenia the Lesser, and Cilicia Trachæa, for having assisted the Romans in clearing the seas of pirates, who greatly infested the coasts of Asia. He contracted a strict friendship with Herod the Great, king of Judea, and married his daughter Glaphyra to Alexander, Herod's son. In the reign of Tiberius, Archelaus was summoned to appear before the senate, for he had always been hated by that emperor, because, in his retirement, at Rhodes, he had paid him no sort of respect. This had proceeded from no aversion in him to Tiberius, but from the warning given Archelaus by his friends at Rome. For Caius Cæsar, the presumptive heir to the empire, was then alive, and had been sent to compose the differences of the east, whence the friendship of Tiberius was then looked upon as dangerous. But when he came to the empire, Tiberius, remembering the disrespect shown him by Archelaus, enticed the latter to Rome by means of letters from Livia, who promised him her son Tiberius's pardon, provided he came in person to implore it. Archelaus obeyed the summons, and hastened to Rome, where he was received by the emperor with great wrath and contempt, and soon after accused as a criminal in the senate. The crimes of which he was accused were mere fictions; but his concern at seeing himself treated as a malefactor was so great, that he died soon after of grief, or, as others say, laid violent hands on himself. He is said to have reigned fifty years. On the death of Archelaus, Cappadocia was reduced to a Roman province, and governed by those of the equestrian order. It continued subject to the Romans till the invasion of the eastern empire by the Turks, to whom it is now subject. The Turks have four Beglerbeglics in it.

CAPPANUS, a name given by some authors to a worm that adheres to and gnaws the bottoms of ships, to which it is extremely pernicious, especially in the East and West Indies; to prevent this, ships are now sheathed with copper, the first trial of which was made on his majesty's frigate the Alarm.

CAPPARIS, in botany, a genus of the monogynia order, and polyandria class of plants, natural order twenty-fifth, putamineæ: CAL. tetraphyllous and coriaceous; the petals are four, the stamina are long; the fruit is a berry, carnous, unilocular, and pedunculated. There are thirty species, of which the principal is C. spinosa, or common caper, a low shrub, generally growing out of the joints of old walls, the fissures of rocks, and among rubbish, in most of the warm parts of Europe. It has woody stalks, which send out many lateral slender branches. At the joints, between the branches, come out the flowers on long foot-stalks; before these expand, the bud, with the empalement, is gathered for pickling. Those which are left expand in form of a single rose, having five large white petals, which are roundish and concave; in the middle are placed a great number of long stamina, surrounding a style which rises above them, and crowned with an oval germen, which afterwards becomes a capsule filled with kidney-shaped seeds. This plant is very difficult to preserve in Britain; it delights to grow in crevices of rocks, old walls, &c. and always thrives best in an horizontal posture; so that, when planted either in pots or in the full ground, they seldom thrive, though they may be kept alive for some years. They are propagated by seeds in the warm parts of Europe, but very seldom in Britain. The buds, pickled with vinegar, &c. are brought to Britain annually from Italy and the Mediterranean. They are supposed to excite appetite and assist digestion: and to be particularly useful as detergents and aperients in obstructions of the liver and spleen.

CAPPE (Newcome), a dissenting divine of the Unitarian persuasion, was born in 1732-3, at Leeds. He was placed at an early age with Dr. Aikin, at Kibworth, in Leicestershire, and afterwards with Dr. Doddridge. He went to Glasgow to complete his education in 1752, and settled ultimately as the pastor of a dissenting congregation at York. He died in 1800, having held this situation forty years. His works are: Discourses on the Providence and Government of God; Remarks in Vindication of Dr. Priestley; a Selection of Psalms for Social Worship; Critical Remarks on many important parts of Scripture, 2 vols. 8vo. &c.

CAPRA, the goat, a genus of quadrupeds belonging to the order pecora. The horns are persistent, hollow, turned upwards, erect, and scabrous. There are eight fore teeth in the under jaw, and none in the upper; and they have no dog teeth. In describing the different species and varieties of this genus, we have again to complain of that confusion of names and descriptions, which we find among zoologists, and which renders it extremely difficult to give a complete, and at the same time a distinct, arrangement of them all. Linnæus and other naturalists reckon fourteen species of this genus, under one of which, viz. the dorcas, they include most of the varieties of the antelope. Kerr reckons only eleven, some of which are by others ranked only as varieties of the common species. But both Kerr and Pennant, as well as Gmelin, Erxleben, and Pallas, make the antelope a distinct genus, forming a link between the goat (capra), and the deer (cervus), with the former of which the antelopes agree in the texture of their horns, which have a core, and in their never casting them; and with the latter, in their elegance of form. Of this genus Kerr enumerates twenty-nine species. Adhering, however, to Linnæus's classification of the whole tribe under one genus (though we by no means dispute the propriety of dividing the goats from the antelopes), the following is the most complete arrangement we can make of these animals.

I. Capra Ægagrus of Pallas and Gmelin; the cervicapra of Kæmpfer, and the Caucasan goat of Pennant and Zimmerman, has large smooth black horns, sharply ridged on their upper, and hollowed on their under surface. There are no vestiges of knots or rings, but on the upper surface are some wavy risings; they bend much back, and are much hooked at the end, approaching a little at the points. On the chin is a great beard, dusky, mixed with chestnut. The fore part of the head is black, the sides mixed with brown; the rest of the animal gray, or gray mixed with rust color. Along the middle of the back, from the neck to the tail, is a black list; and the tail is black. The female is either destitute of horns, or has very short ones. In size it is superior to the largest he-goat, but in form and agility resembles a stag. They inhabit the lower mountains of Caucasus and Taurus, all Asia Minor, and perhaps the mountains of India, and abound on the inhospitable hills of Persia. It is an animal of great agility.

II. Capra Ammon has semicircular, plain, white horns, and no beard. It is about the size of a ram, and is a native of Siberia. This animal is called the wild sheep by Mr. Pennant, and is accordingly ranked as a species of ovis by Kerr.

III. Capra Bezoartica, the bezoar goat, is bearded, and has long, wrinkled, slender, upright, tapering, sharp-pointed horns. It is a native of Persia. The bezoar is found in one of its stomachs, called abomasus. It has a red fur, with a white breast and belly; and is classed among the antelopes by Gmelin, Pallas, Pennant, &c.

IV. Capra Caucasica, the Caucasan goat, described by Kerr, as quite a different species from the Caucasan goat of Pennant. The horns, he says, are slightly triangular, knobbed on their anterior surface and arched backwards, considerably divaricating, with their extremities turned inwards. It inhabits the bare, schistic, rocky summits of mount Caucasus, near the origin of the Terek and Chouban rivers. The horns of the male are of a dirty blackish color, and much longer than those of the common goat; those of the female are brownish, and much smaller. The upper parts of the body are a bright brownish gray, with a narrow dark brown line along the back; the under parts are whitish, and the limbs black. The hair is harsh, somewhat stiff, ash-colored at the roots, and mixed with an ash-colored wool. It is about the size of a common goat, with which, however, it will not breed; and is rather shorter and broader in its general form.

V. Capra Cervicapra, the lidmee, or Indian antelope of Buffon, has long prominently annulated, tapering, plaited, cylindrical horns, and inhabits Barbary. The hair near the horns is longer than in any other part of the body. The females want horns.

VI. Capra Depressa, the African goat, has short, thick, triangular, depressed, horns, bent inwards, lying on the head. It is about the size of a kid; and the hair is long and pendulous, rough in the male, but smooth in the female. The male has also two long hairy wattles below the chin.

VII. Capra Dorcas, the antelope, has cylindrical annulated horns, bent backward, contorted, and arising from the front between the eyes. It is a native of Africa and Mexico. These animals are of a restless and timid disposition; extremely watchful; of great vivacity; remarkably swift; exceedingly agile; and their boundings so light and elastic, as to strike the spectator with astonishment. What appears singular, they will stop in the middle of their course, for a moment gaze at their pursuers, and then resume their flight. The chase of these animals is a favorite diversion in the east. The greyhound is unequal in the course; and the sportsman is obliged to call in the aid of the falcon, trained to the work, to seize on the animal, and so to impede its motions as to give the dog time to overtake it. It is a common compliment in the east; to say, 'Aine el czazel,' i. e. you have the eyes of an antelope. Some species form herds of 2000 or 3000, while others keep in small troops of five or six. They generally reside in hilly countries, and some browse like the goat. To the distinctive marks of the antelope we may add the following characteristics viz. that most of them have distinct lachrymal pits under the eyes; that all have a plait of the skin subdivided into several cells in the groins; brushes of hair on the knees, and beautiful black eyes: in general also their flesh is excellent. Kerr, who, as already observed, classes the antelope as a distinct genus, enumerates twenty-nine species; among which he ranks the Bezoartica, cervicapra, gazella, and tartarica of Linnæus.

VIII. Capra Gazella, the goat antelope of Linnæus, the antelope oryx, or Bezoartica of Pallas, the pasan of Buffon, or Egyptian ante-

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VIII. Capra Gazella, the goat antelope of
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lope of Pennant, has straight, slender, distinctly annulated horns, three feet long, which taper to a point: the body and sides are of a reddish ash color, with a dusky line along the back. It inhabits Syria, Arabia, Persia, India, Egypt, Ethiopia, and the Cape. It is about the size of a fallow deer. Gmelin takes this for the zebi of Scripture.

IX. Capra Gnou, has scabrous horns, thick at the base, bending forward close to the head, then suddenly reverting upwards. The mouth is square; the nostrils covered with broad flaps. From the nose, half way up the front, is a thick oblong square brush of long stiff black hairs reflected upwards, on each side of which the other hairs are long, and point closely down the cheeks. Round the eyes are disposed in a radiated form several strong hairs. The neck is short, and a little arched. On the top is a strong and upright mane, reaching from the horns beyond the shoulders. On the chin is a long white beard; and on the gullet a very long pendulous bunch of hair. The legs are long, elegant, and slender, like those of a stag. On each foot is only a single spurious or hind hoof. It is a strange compound of animals; having a vast head like that of an ox, body and tail like a horse, legs like a stag, and the sinus lacrymalis of an antelope. Its ordinary size is about that of a common galloway; its length being somewhat above five, and height rather more than four feet. These animals inhabit in great numbers the fine plains of the great Namaquas, far north of the Cape of Good Hope, extending from south latitude 25° to 28° 42', where Africa seems at once to open its vast treasures of hoofed quadrupeds. The gnou is an excedingly fierce animal: on the sight of anybody it usually drops its head, and puts itself into an attitude of offence; and will dart with its horns against the pales of the enclosure towards the persons on the outside; yet it will afterwards take the bread which is offered. It will often go upon its knees, run swiftly in that singular posture, and furrow the ground with its horns and legs. The Hottentots call it gnou from its voice. It has two notes, one resembling the bellowing of an ox, the other more clear. It is called an ox by the Europeans, and is stiled accordingly bos gnou by Zimmerman.

X. Capra Hircus, the common goat, with arched carinated horns, and a long beard. It is a native of the eastern mountains. Goats are animals of more sagacity than sheep. Instead of having an antipathy to mankind, they voluntarily mingle with them, and are easily tamed. Even in uninhabited countries, they betray no savage dispositions. They have a lively, capricious, and wandering disposition; are fond of high and solitary places, and frequently sleep upon the very points of rocks. They are more easily supported than any other animal of the same size; for there is hardly a herb, or the bark of a tree, which they will not eat. Neither are they liable to so many diseases as sheep, and can bear heat and cold with less inconvenience. Goats go with young four months and a half, and bring forth from the end of February to the end of April. They have only two teats, and generally bring forth but one or two young; sometimes three, and in good warm pastures there have been instances, though rare, of their bringing forth four at a time. Both young and old are affected by the weather; a rainy season makes them thin, a dry sunny one fat and blythe. In our climate they seldom live above eleven or twelve years. Though their food costs next to nothing, their produce is valuable. The whitest wigs are made of their hair; for which purpose that of the he-goat is most in request. The Welsh goats are far superior in size, and in length and fineness of hair, to those of other mountainous countries. Their usual color is white: those of France and the Alps are short-haired, reddish, and the horns small. Bolsters, made from the hair of a goat, were in use in the days of Saul, as appears from 1 Sam. xix. 13. The species very probably was the Angora goat, whose soft and silky hair supplied a most luxurious couch. The suet of the goat is in great esteem as well as the hair. The inhabitants of Caernarvonshire suffer these animals to run wild on the rocks in winter as well as in summer; and kill them in October for the sake of their fat. The goats killed for this purpose are about four or five years old. Their suet makes candles far superior in whiteness and goodness to those made from that of the sheep or the ox, and accordingly brings a much greater price in the market; nor are the horns without their use, the country-people making of them excellent handles for tucks and penknives. The skin is peculiarly well adapted for the glove manufactory, especially that of the kid: abroad it is dressed and made into stockings, bed-ticks, bed-hangings, sheets, and even shirts. In the army it covers the horseman's arms, and carries the foot-soldier's provisions. As it takes a dye better than any other skin, it was formerly much used for hangings in the houses of people of fortune, being susceptible of the richest colors, and when flowered and ornamented with gold and silver, became an elegant and superb furniture. The flesh is of great use to the inhabitants of those countries which abound with goats; and affords them a cheap and plentiful provision in winter. The haunches are frequently salted and dried, and supply all the uses of bacon: this by the Welsh is called coch yr wden, or hung venison. The meat of a spayed goat of six or seven years old, (which is called hyfr) is reckoned the best; being generally very fat and sweet. It makes an excellent pasty; goes under the name of rock venison; and is little inferior to that of the deer. The milk is sweet, nourishing, and medicinal. It is an excellent succedaneum for ass's milk; and has, with a tea-spoonful of hartshorn, drunk warm in bed in the morning and afternoon, and repeated for some time, proved a cure for phthisis when not too far gone. In some of the mountainous parts of Scotland and Ireland, the milk is made into whey, which has done wonders in this and similar cases; and to many of those places there is as great a resort of patients of all ranks, as there is in England to the spas or baths. The milk of this animal must be salutary, as it browses only on the tops, tendrils, and flowers, of the mountain shrubs, and medidicinal herbs; rejecting the grosser parts. The blood of the he-goat, dried, was formerly reckoned a specific in pleurisies, and is even taken notice of by Dr. Mead for this purpose; but is now deservedly neglected. Cheese made of goat's milk is much valued in some of our mountainous countries, when kept to a proper age. It has a peculiar taste and flavor. There are several varieties of the common goat: such as, 1. C. hircus Angorensis, the Angora goat, a variety found only in the tract that surrounds Angora, Beibazar, and Cougna, in Asiatic Turkey, and about Gombron in Persia. 2. C. hircus capricornus, the capricorne of Buffon, has short horns, the ends turned forwards, their sides annulated, and the rings more prominent before than behind. Kerr says the place, history, and even figure, of this animal are uncertain. 3. C. hircus mutica, the cabonus goat of Pennant, is ranked by Kerr as a distinct species, although he styles it 'a variety resembling the common domestic goat in everything but the want of horns.' Perhaps this deficiency may be accidental, like that of many of the Scots oxen.

XI. Capra Ibex, the wild goat, is supposed to be the stock whence the tame species sprung. It has large knotty horns reclined upon its back, is of a yellowish color, and its beard is black. The females are less and have smaller horns, more like those of a common she-goat, and with few knobs on the upper surface: they bring forth one kid, seldom two, at a birth. They inhabit the highest Alps of the Grisons country and the Valais; they are also found in Crete, Italy, the Appenines, Germany, Siberia, and Kamtschatka. They are very wild, and difficult to be shot, as they always keep on the highest points. Their chase is exceedingly dangerous: being very strong, they often tumble the incautious huntsman down the precipices, unless he has time to lie down, and let the animals pass over him. They are said not to be long-lived. Their flesh is much esteemed, and their skins are very thin.

XII. Capra Mambrina, or Mambrica, the Syrian goat, has short reclined horns, pendent ears, and a beard. It is a native of the east. Their ears are of vast length; from one to two feet; and sometimes so troublesome, that the owners cut off one to enable the animal to feed with more ease. These animals supply Aleppo with milk. They are larger than the common goats.

XIII. 1. Capra Reversa, the buck of Juda, has short, smooth, erect horns, curved a little forwards. It is about the size of a kid of a year old. It inhabits Juda, or Widaw, in Africa. Kerr describes another variety, viz. 2. C. reversa nana, styled by Buffon, the other buck of Juda. It inhabits the same country, is likewise of dwarfish size, and, though joined with the preceding by Gmelin, is separated by Kerr, on account of the different figure of the horns; which he describes as 'very thick, rounded on the upper surface, with two sharp edges below; and bent backwards with a slight spiral twist, downwards, outwards, and upwards.'

XIV. Capra Rupicapra, the chamois goat, has smooth, erect, and crooked horns. The body is of a dusky red color; but the front, top of the head, gullet, and inside of the ears are white; the under part of the tail is blackish; and the upper lip is a little divided. It inhabits the Alps of Switzerland, Italy, and the ci-devant province of Dauphiné, the Pyrenean mountains, Greece, and Crete: does not dwell so high in the hills as the ibex, and is found in greater numbers. It is of the size of a domestic goat, and its hair is as short as that of a hind. Its vivacity is delightful, and its agility truly admirable. These animals are very social; they go in little flocks of from three to twenty; sometimes from sixty to a hundred of them are seen dispersed along the declivity of the same mountain. The large males keep at a distance from the rest, except in the rutting season, when they join the females, and beat off all the young. At this period, their ardor is still longer than that of the wild bucks. They bleat often, and run from one mountain to another. Their season of love is in the months of October and November, and they bring forth in March and April. A young female takes the male at the age of eighteen months. The females bring forth one, but rarely two, at a time. The young follow their mothers till October, if not dispersed by the hunters or the wolves. They live between twenty and thirty years. Their flesh is very good. A fat chamois goat will yield from ten to twelve pounds of suet, which is harder and better than that of the goat. The blood of the chamois is extremely hot, and is said to have qualities and virtues nearly equal to those of the wild goat. The voice of the chamois is a very low and almost imperceptible kind of bleating, resembling that of a hoarse domestic goat. By this bleating they collect together. But, when alarmed, or when they perceive an enemy, they advertise one another by a kind of whistling noise. The sight of the chamois is very penetrating, and his sense of smelling is acute. When he sees a man distinctly, he stops for some time, and flies off when he makes a nearer approach. His sense of hearing is equally acute, for he hears the smallest noise. When the wind blows in the direction of a man, he will perceive the scent at the distance of more than half a league. Hence, when he smells or hears any thing which alarms him, he whistles with such force, that the rocks and forests re-echo the sound. All his brethren that are near take the alarm. This whistling is performed through the nostrils, and consists of a strong blowing, similar to the sound which a man may make by fixing his tongue to the palate, with his teeth nearly shut, his lips open, and somewhat extended, and blowing long and with great force. The chamois is very fond of the leaves and tender buds of shrubs, particularly of the meum athamanta. Kramer, in his Hist. Nat. Aust. supposes the balls called ægagropilæ, found in his stomach, to be occasioned by this food. See Ægagropilæ. He ruminates like the common goat. His head is adorned with two small horns, from half a foot to nine inches in length. Their color is a fine black, and they are placed on the front nearly between his eyes; and, instead of being reflected backwards, like those of other animals, they advance forward above the eyes, and bend backward at the points, which are extremely sharp. He adjusts his ears most beautifully to the points of his horns. Two tufts of black hair descend

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from his horns to the sides of his face. The rest of the head is of a yellowish white color, which never changes. The horns of the chamois are used for the heads of canes. Those of the female are smaller and less crooked. The skin of the chamois, when dressed, is very strong, nervous, and supple, and makes excellent riding breeches, gloves and vests. Garments of this kind last long, and are of great use to manufacturers. The chamois goats are so impatient of heat, that, in summer, they are only to be found under the shades of caverns in the rocks, among masses of congealed snow and ice, or in elevated forests, on the northern declivities of the most scabrous mountains, where the rays of the sun seldom penetrate. They pasture in the mornings and evenings, and seldom during the day. Their mode of climbing or descending inaccessible rocks is admirable. They neither mount nor descend perpendicularly, but in an oblique line. When descending, particularly, they throw themselves down across a rock which is nearly perpendicular, and of twenty or thirty feet in height, without having a single prop to support their feet. In doing this, they strike their feet three or four times against the rock, till they arrive at a proper resting place below. The spring of their tendons is so great, that, when leaping about among the precipices, one would imagine they had wings instead of limbs. The legs are long; those behind are somewhat longer, and always crooked, which favors their springing to a great distance; and, when they throw themselves from a height, the hind legs receive the shock, and perform the office of two springs in breaking the fall. During winter, they inhabit the lower forests, and live upon pine leaves, the buds of trees, bushes, and such green or dry herbs as they can find by scratching off the snow with their feet. The forests that delight them most, are those which are very full of rocks and precipices. The hunting of the chamois is very difficult and laborious. See HUNTING. This species is ranked among the antelopes by Messrs. Pennant, Kerr, Gmelin, &c.

XV. CAPRA TARTARICA, the saiga of Buffon, has cylindrical, straight, annulated horns; the points inclining inward, the ends smooth; the other part surrounded with very prominent annuli; of a pale yellow color, and the greatest part semipellucid; the cutting teeth are placed so loose in their sockets, as to move with the least touch. The male is covered with a rough hair like the he-goat, and has a very strong smell; the female is smoother. The hair on the sides and throat is long, and resembles wool; that on the neck and head is hoary; the back and sides of a dirty white; the breast, belly, and inside of the thighs, of a shining white. The females are destitute of horns. These animals inhabit all the deserts from the Danube and Dnieper to the River Irtish, but not beyond. Nor are they ever seen to the N. of 54° or 55° lat. They are found in Poland, Moldavia, about Mount Caucasus, the Caspian Sea, and Siberia, in the dreary open deserts, where salt springs abound, feeding on the salt, acrid, and aromatic plants of those countries, and grow in summer very fat: but their flesh acquires a taste disagreeable to many people, and is scarcely eatable, until it is suffered to grow cold after dressing. The females go with young the whole winter; and bring forth in the northern deserts in May. The young are covered with a soft fleece, like new dropped lambs, and curled and waved. They are regularly migratory. In the rutting season, late in autumn, they collect in flocks of thousands, and retire into the southern deserts. In the spring they divide into little flocks, and return northward. The male feeds promiscuously with the females and their young. They rarely lie down all at the same time; but, by a provident instinct, some are always keeping watch; and, when they are tired, they seemingly give notice to such as have taken their rest, who rise instantly, and relieve the sentinels. They thus often preserve themselves from the attack of wolves, and the surprise of the huntsmen. They are excessively swift, and will outrun the fleetest horse or greyhound; yet partly through fear (for they are the most timid of animals), and partly by the shortness of their breath, they are very soon taken. If they are bit by a dog they instantly fall down, nor will they even offer to rise. In running they seem to incline on one side. In a wild state they have no voice. When brought up tame, the young emit a short sort of bleating, like sheep. The males are very libidinous. When taken young they may easily be tamed; but, if caught at full age, they are so wild and obstinate as to refuse all food. When they die, their noses are quite flaccid. They are hunted for the sake of their flesh, horns, and skins, which are excellent for gloves, belts, &c. See HUNTING. The fat resembles that of mutton; in taste, that of a buck: the head is reckoned the most delicate part.

CAPRÆ SALTANTES, Lat. i. e. dancing goats, in meteorology, fiery meteors or exhalations, sometimes seen in the atmosphere. They form inflected lines, resembling in some measure the caperings of a goat; whence the name.

CAPRARIA, in botany, goat-weed, a genus of the angiospermia order, and didynamia class of plants; natural order fortieth, personatæ: CAL. quinquepartite: COR. campanulated, quinquefid, with acute segments: CAPS. bivalved, bilocular, and polyspermous. Species, six; the principal, C. biflora, is a native of the warm parts of America.

CAPREA, or CAPREÆ, in ancient geography, an island in the Tuscan Sea, famous for the retreat of the emperor Tiberius for seven years. See TIBERIUS. Before he came hither Capreæ had attracted the notice of Augustus, as a most eligible retreat, though almost in the centre of the empire. His successor preferred it to every other residence; and in order to vary his pleasures, and enjoy the advantages as well as avoid the inconveniences of each revolving season built twelve villas in different temperatures, and dedicated to the twelve greater gods: the ruins of some of them are still to be seen. The odium attached to the memory of Tiberius proved fatal to his favorite abode; scarcely was his death proclaimed at Rome, when the senate issued orders for the demolition of every fabric he had raised on the island, which, by way of disgrace, was thenceforward destined to be a state prison. The wife and sister of Commodus were banished to its inhospitable rocks, which were soon stained with their blood. In the middle ages Capreæ became an appendage of the Amalfitan republic, and, after the downfall of that state, fell to the duchy of Naples. There stood a pharos on this island, which, a few days before the death of Tiberius, was overthrown by an earthquake. See CAPRI.

CAP'REOLATE, *adj.* from the Lat. *capreolus*, a vine tendril.

Such plants as turn, wind, and creep along the ground, by means of tendrils, as gourds, melons, and cucumbers, are termed, in botany, *capreolate* plants. *Harris.*

CAPREOLI, in botany, the tendrils by which vines, peas, and other creeping plants, fasten themselves to anything near them. See BOTANY.

CAPREOLUS, in anatomy, the helix, or outer ambit of the ear.

CAPRI, an island at the entrance of the Gulf of Naples, anciently called Caprea, seven miles long, and two broad. A large portion of its surface is unfit for cultivation; but every spot that will admit the hoe, is industriously tilled, and richly laden with the best productions of the earth. It exhibits some relics of its ancient grandeur. Two broken columns show the entrance of Tiberius's court (see CAPREA); at Santa Maria there are extensive vaults and reservoirs; and, on an adjacent hill, the remains of a light house. The island is much frequented by quails, forming the principal revenue of the bishop, whence he is called the bishop of quails.

CAPRI, the capital of the above isle, seated on a high rock at the west end of it, twenty-seven miles from Naples. Long. 14° 8′ E., lat. 40°11′ N.

CAPRI'CE,
CAPRI'CHIO,
CAPRI'CIOUS,
CAPRI'CIOUSLY,
CAPRI'CIOUSNESS.

} Fr. *caprice*; Ital. *capriccio*; Span. *capricho*; from Lat. *caper*, a goat; allusively to the wantonness and freakishness of that animal. Serenius, on the other hand, traces caprice to the Gothic *kepra*, corrugare frontem. 'Caprichio,' says Sherwood, is 'a fantasticall humour;' and the word caprice, in the French, he defines to be a 'humour, caprichio, giddy thought, fantasticall conceit; a sudden will, desire, or purpose to do a thing, for which one hath no (apparent) reason.' This is so full and correct that it is unnecessary to add anything to it. The derivatives from the primary word need no explanation.

Will this *capricio* hold in thee, art sure?
Shakspeare. All's Well.

TOUCH. I am here with thee and thy goats as the most *capricious* poet, honest Ovid, was among the Goths.

JAQ. O knowledge ill inhabited! worse than Jove in a thatched-house!
Id. As You Like It.

Act freely, carelessly, and *capriciously*, as if our veins ran with quicksilver. *Ben Jonson.*

Capricious, wanton, bold and brutal lust,
Is meanly selfish; when resisted cruel,
And, like the blast of pestilential winds,
Taints the sweet bloom of Nature's fairest forms.
Milton's Comus.

It is a pleasant spectacle to behold the shifts, windings, and unexpected *caprichios* of distressed Nature, when pursued by a close and well-managed experiment. *Glanville. Preface to the Scepsis.*

We are not be guided in the sense of that book, either by the misreports of some ancients, or the *caprichios* of one or two neoterics. *Grew.*

Quoth Hudibras, 'tis a *caprich*
Beyond the infliction of a witch;
So cheats to play with those still aim,
That do not understand the game. *Hudibras.*

Heaven's great view is one, and that the whole;
That counterworks each folly and *caprice*,
That disappoints the effect of every vice. *Pope.*

A subject ought to suppose that there are reasons, although he be not apprised of them; otherwise, he must tax his prince of *capriciousness*, inconstancy, or ill design. *Swift.*

Love's a *capricious* power; I've known it hold,
Out, though a fever caused by its own heat,
But be much puzzled by a cough and cold,
And find a quinsy very hard to treat. *Byron.*

CAP'RICORN, *n.* Lat. *capricornus*. One of the zodiacal signs; the winter solstice.

But when the golden spring reveals the year,
And the white bird returns, whom serpents fear;
That season deem the best to plant thy vines:
Next that, is when autumnal warmth declines;
Ere heat is quite decayed, or cold begun,
Or *Capricorn* admits the winter sun.
Dryden. Georgics, b. ii.

Let the longest night in *Capricorn* be of fifteen hours, the day consequently must be of nine.
Notes to Creech's Manilius.

CAPRICORN, one of the signs of the zodiac, marked thus ♑. The ancients accounted Capricorn the tenth sign; and it made the winter solstice with regard to our hemisphere: but the stars having advanced a whole sign towards the east, Capricorn is now rather the eleventh sign; and it is at the sun's entry into Sagittarius, that the solstice happens, though the ancient manner of speaking is still retained. This sign is represented on ancient monuments, medals, &c. as having the fore part of a goat, and the hind part of a fish, which is the form of an Ægipan: sometimes simply under the form of a goat. The stars in this constellation are 0·0·3·3·9·35· in all fifty of the first six magnitudes.

CAPRICORN, TROPIC OF, a lesser circle of the sphere, which is parallel to the equinoctial, passing through the beginning of Capricorn. See ASTRONOMY.

CAPRIFICA'TION, *n.* Lat. *caprificatio*. An operation performed to ripen the fruit of the fig-tree.

The process of *caprification* being unknown to these savages, the figs come to nothing. *Bruce.*

CAPRIFICATION, a method used in the Levant, for ripening the fruit of the domestic fig tree, by means of insects bred in that of the wild fig tree. The most ample and satisfactory accounts of this curious operation in gardening are those of Tournefort and Pontedera: the former, in his Voyage to the Levant, and in a Memoir delivered to the Academy of Sciences at Paris in 1705; the latter, in his Anthologia. The caprification of the ancient Greeks and Romans, described by Theophrastus, Plutarch, Pliny, and other authors of antiquity, corresponds in every circumstance with what is practised at this

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day in the Archipelago and in Italy. These all agree in declaring, that the wild fig tree, caprificus, never ripened its fruit; but was absolutely necessary for ripening that of the garden or domestic fig, over which the husbandmen suspended its branches. The reason has been supposed to be that by the punctures of these insects the vessels of the fruit are lacerated, and thereby a greater quantity of nutritious juice derived thither; or that, in depositing their eggs, the gnats leave behind them some sort of liquor proper to ferment gently with the milk of the figs, and to make their flesh tender. The figs in Provence, and even at Paris, ripen much sooner for having their buds pricked with a straw, dipped in olive oil. Plums and pears likewise pricked by some insects, ripen much faster, and the flesh round such puncture is better tasted than the rest. Linnæus explained the operation, by supposing that the insects brought the farina from the wild fig, which contained the male flowers only, to the domestic fig, which contained the female ones. Hasselquist, from what he saw in Palestine, seemed to doubt of this mode of fructification. M. Bernard, in the Memoirs of the Society of Agriculture, opposes it more decidedly. He could never find the insect in the cultivated fig; and, in reality, it appeared to leave the wild fig after the stamina were mature, and their pollen dissipated: besides, he adds, what they may have brought on their wings must be rubbed away, in the little aperture which they would form for themselves.

CA'PRIFOLE, Lat. *caprifolium.* Minsheu spells it caprifoile. The honey-suckle. See LONICERA.

With wanton yvie-twine entrayled athwart,
And eglantine and *caprifole* emong.
Spenser. Faerie Queen.

CAPRIMULGUS, the goat-sucker, or fern-owl, in ornithology, a genus of birds of the order passeres. The beak is incurvated, small, tapering, and depressed at the base; the mouth opens very wide. They lay two eggs, which they deposit on the naked ground; the lateral toes are connected by a small membrane to the middle one. There are several species or varieties in different countries, but all nearly similar to one or other of the following:—C. Americanus has the tubes of the nostrils very conspicuous. It is a night bird, and is found in America. C. Europæus has the tubes of the nostrils hardly visible. It feeds on insects. This bird makes but a short stay with us; appearing the latter end of May, and disappearing in September. Scopoli seems to credit the report of their sucking the teats of goats, an error delivered down from the days of Aristotle. Its notes are most singular. The loudest so much resembles that of a large spinning wheel, that the Welsh call this bird aderyn y droell, or the wheel bird. It lays its eggs on the bare ground; usually two; they are of a long form, of a whitish hue, prettily marbled with a reddish brown. Its plumage is a beautiful mixture of white, black, ash-color, and ferruginous, disposed in lines, bars, and spots. The male is distinguished from the female by a great oval white spot near the end of the three first quill-feathers, and another on the outmost feathers of the tail. A variety, only eight inches in length, inhabits Virginia, in summer: arrives there towards the middle of April, and frequents the mountainous parts, but will frequently approach the houses in the evening, crying several times very loud, somewhat like the word, whip-eriwhip, or whip-poor-will, the first and last syllables pronounced loudest. Its eggs are of a dull green, with dusky spots and streaks. Another variety, larger, inhabits Virginia and Carolina; where it is called the rain-bird, because it never appears in the day-time, except when the sky, being obscured with clouds, betokens rain.

CAPRIOLE', *n.* Fr. *capriole, cabriole;* in horsemanship, a peculiar kind of leap, also called the goats' leap. The word was also formerly descriptive of springing up in dancing; but is no longer used in that sense.

Caprioles are leaps such as a horse makes in one and the same place, without advancing forwards, and in such a manner that when he is in the air, and height of his leap, he yerks or strikes out with his hinder legs even and near. A *capriole* is the most difficult of all the high menage, or raised airs. It is different from the croupade in this, that the horse does not show his shoes; and from a balotade, in that he does not yerk out in a balotade.
Farrier's Dictionary

A gallant dance, that lively doth bewray
A spirit and a virtue masculine,
Impatient that her house on earth should stay,
Since she herself is fiery and divine;
Oft doth she make her body upward fine;
With lofty turns and *caprioles* in the air,
With which the lusty tunes accordeth fair.
Davies. Orchestra.

CAPRIOLE. To make this air perfect, the horse should raise his fore and hind parts equally high, and when he strikes out behind, his croupe should be level with his withers. In rising and coming down his head should be quite steady, and his forehead presented quite straight; in rising, his fore legs should be equally and a good deal bent; he ought to strike out with all his force with his hind legs; his feet should be of an equal height; and, lastly, he should, at every leap, fall a foot and a-half or two feet distant from the spot where he rose.

CAPSARIUS, from capsa, a chest, among the Roman bankers, was he who had the care of the money-chest or coffer; also a servant who attended the Roman youth to school, carrying a satchel with their books in it; sometimes also called librarius.

CAPSICUM, in botany, Cayenne or Guinea pepper, a genus of the monogynia order, and pentandria class of plants; natural order twenty-eighth, luridæ: COR. verticillated; fruit, a sapless berry. Species four, viz.:—C. annuum, with oblong fruit, the common long-podded capsicum, commonly cultivated in the gardens. Of this there is one variety with red, and another with yellow fruit; and of these there are several sub-varieties, differing only in the size and figure of their fruit. From the pods of this plant is produced the Guinea pepper of the shops. C. frutescens, Barbary pepper, with small pyramidal fruit growing erect. C. boccatum, having dark green leaves, white flowers, and roundish red berries, from the powder of which is made the common Cayenne pepper. C. sinense, having soft red fruit, and longer dark shining green leaves.

CAPSQUARES, strong plates of iron which cover the trunnions of a gun, and keep it in the carriage. They are fastened by a hinge to the prize-plate, that they may lift up and down, and form the part of an arch in the middle to receive a third part of the thickness of the trunnions; for two-thirds are let into the carriage, and the other end is fastened by two iron wedges called the forelocks and keys.

CAP'STAN, *n.* } Fr. *cabestan;* Span. *cabes-*
CAP'STAN-BAR. } *trante*, or *cabrestante*; Belg. *kapstand.* It is sometimes erroneously called capstern. A cylinder, which is made to revolve by means of levers, for the purpose of raising any great weight, particularly the anchors of ships. The capstan-bar is the lever.

> The weighing of anchors by the *capstan* is also new.
> *Sir Walter Raleigh.*

> No more behold thee turn my watch's key,
> As seamen at the *capstan* anchors weigh.
> *Swift.*

The CAPSTAN usually consists of a strong cylinder of wood, with a truncated cone proceeding from the under extremity of its head. It is constructed on the principle of the wheel and axle, and is put in motion by bars or levers, called hand-spikes. An apparatus of this description is generally employed on ship-board for the raising of anchors and other violent manipulations.

There are commonly two capstans in a ship of war; the main-capstan, placed behind the main-mast, standing on the first deck, and reaching four or five feet above the second; this is also called the double-capstan, because it has two drum-heads, and serves two decks for drawing of anchors, and because its force may be doubled by applying hands on each deck. It has bars, whelps, &c., for turning and stopping it. The other is the jeer-capstan, or little capstan: this stands on the second deck, between the main-mast and the mizen: its use is, chiefly, to heave up the jeer-rope, or to heave up the viol, to hold off by when the anchor is weighed, and on other occasions where a less force is required than to weigh the anchors, &c.

The parts of a capstan are—the foot, which is the lowest part; the spindle, the smallest part of which turns round in an iron socket, called the saucer; the whelps, a sort of brackets set into the body of the capstan close under the bars, and reaching downwards from the lower part of the drum-head to the deck; the barrel, the main body of the whole; the drum-head, which is a broad cylindric piece of wood fixed above the barrel and whelps, in which are the holes for the bars to be put into; the bars, which are small pieces of timber by which the men heave; the pins, which are little bolts of iron, thrust perpendicularly through the holes of the drum-head, and through a correspondent hole in the end of the bar made to receive them when the bars are fixed; the pawls, which are pieces of iron bolted to one end of the beams of the deck, close to the body of the capstan, but so as that it has liberty to turn about every way; and against them do the whelps of the capstan bear; so that the capstan may be stopped from turning back. There are also hanging pawls, which reach from the deck above to the drum-head immediately beneath it; and, lastly, the swifter, which is a rope passed horizontally through holes in the outer ends o. the bars, and, being drawn tight, is designed to keep the men steady whilst they work, and to afford room for a greater number to work at once.

An important improvement has been suggested in the capstan by captain Hamilton of the royal navy, which is that of reducing the number of whelps from six to five, making the lower part more obtuse, and filling it up circular by the chocks, and also making the upper part more perpendicular in the sides, and open, the whelps being a portion of a circle.

There is a simple and powerful capstan which may now be noticed. It consists of a compound barrel, or rather of two cylinders of different radii. If a rope be attached to one extremity of the smaller cylinder, and then, after passing round a pulley be made to coil on a large one, so that as the one rope unwinds the other is rolled up, the apparatus may be considered as complete.

In describing a capstan of this kind, Dr Robison asserts, that when the diameters of the cylinders which compose the double barrel are as 16 to 17, and their circumferences as 48 to 51, the pulley is brought nearer to the capstan by about three inches for each revolution of the bar. This, however, is a mistake, as the pulley is brought only an inch and a half nearer the axis. This will be evident if we conceive a quantity of rope, equal to the circumference of the larger cylinder, to be wound up all at once, and a quantity equal to the circumference of the lesser one, to be unwound all at once. In the present case 51 inches of rope will be coiled round the larger part of the barrel by one revolution of the capstan bar, and consequently the load would be raised 25½ feet, the rope being doubled. Let 48 inches of rope be now unwound from the lesser cylinder, and the load will sink 24 feet; therefore $25\frac{1}{2} - 24 = 1\frac{1}{2}$ feet is the whole height or distance through which the weight has been moved. See MECHANICS.

CAP'SULE, *n.* } Lat. *capsula*, the dimi-
CAP'SULAR, *adj.* } nutive of *capsa*, from καψα,
CAP'SULARY, *adj.* } a little chest. The cell,
CAP'SULATE, *adj.* } or ear, in plants, which
CAP'SULATED, *adj.* } holds the seeds. The first two of the adjectives, derived from the noun, signify hollow, like a chest; the last two, enclosed, as in a chest.

> It ascendeth not directly into the throat, but ascending first into a *capsulary* reception of the breast-bone, it ascendeth again into the neck.
> *Browne's Vulgar Errours.*

> Such (seeds) as are corrupted and stale, will swim; and this agreeth unto the seeds of plants locked up and *capsulated* in their husks.
> *Id.*

> The heart lies immersed, or *capsulated*, in a cartilage, which includes the heart, as the skull doth the brain.
> *Derham.*

On threshing, I found things as I expected; the ears not filled, some of the *capsules* quite empty, and several others containing only withered hungry grain, inferior to the appearance of rye.

Burke on Scarcity.

The *capsule* of the geranium and the beard of wild oats are twisted for a similar purpose, and dislodge their seeds on wet days, when the ground is best fitted to receive them. Hence, one of these, with its adhering capsule, or beard, fixed on a stand, serves the purpose of an hygrometer, twisting itself, more or less, according to the moisture of the air.

Darwin.

CAPSULE. See Botany.

CAPTAIN, *n* & *s*.
Cap'tainry, *n*.
Cap'tainship, *n*.
Cap'tainless, *adj*.
Cap'tain-general.

Fr. *capitaine*; Ital. *capitano*; Span. *capitan*; Dut. *kapitein*; Swed. *kapten*. 'In Latin,' says Johnson, '*capitaneus*, being one of those who, by tenure *in capite*, were obliged to bring soldiers to the war.' Skinner, however, derives it from *caput*. Todd supposes it to be a hybrid word, from *caput*, and *thane*, an ancient title of honor. It was anciently the title of a chief commander; but this use of the word is now nearly, if not quite, obsolete. Connected with this, it implied a man skilled in war; and it is still occasionally thus used. Its common acceptation is a commander of a ship, or of a company in a regiment; but it is also employed in some civil cases, as in the captain of a class at school. The captain-general of an army is a general in chief, says Johnson; but the term has a larger scope, extending to authority over various bodies of forces. The British monarch is captain-general, or generalissimo, of all the troops in his dominions. Captainry is chieftainship, or power over a certain district. Captainship, besides its obvious meaning, also denotes skill in military affairs.

Nashan shall be *captain* of Judah. *Numbers.*
He sent unto him a *captain* of fifty. *Kings.*

Awhile they fled, but soone returned againe
With greater fury than before was found;
And evermore their cruell *capitaine*
Sought with his rascal routs t'enclose them round,
And, overcome, to tread them on the ground.

Spenser.

There should be no rewards taken for *captainries* of countries, no shares of bishoprics for nominating bishops. *Id.*

Dismayed not this
Our *captains*, Macbeth and Banquo?

Shakspeare. Macbeth.

A *captain!* these villains will make the name of *captain* as odious as the word occupy; therefore *captains* had need look to it. *Id. Henry IV.*

Therefore, so please you to return with us,
And of our Athens, thine and ours, to take
The *captainship*.

The lieutenant of the colonel's company might well pretend to the next vacant *captainship* in the same regiment. *Wotton.*

To diminish the Irish lords, he did abolish their pretended and usurped *captainships*. *Davies on Ireland.*

The grim *captain*, in a surly tone,
Cries out—Pack up, you rascals, and begone.

Dryden.

So the sweet lark, high poised in air,
Shuts close his pinions to his breast,
If chance his mate's shrill calls he hear,
And drops at once into her nest.
The noblest *captain* in the British fleet
Might envy William's lip those kisses sweet. *Gay.*

There's *Captain* Pannel, absent half his life,
Comes back, and is the kinder to his wife;
Yet Pannel's wife is brown, compared to me,
And Mistress Biddel sure is fifty-three. *Id.*

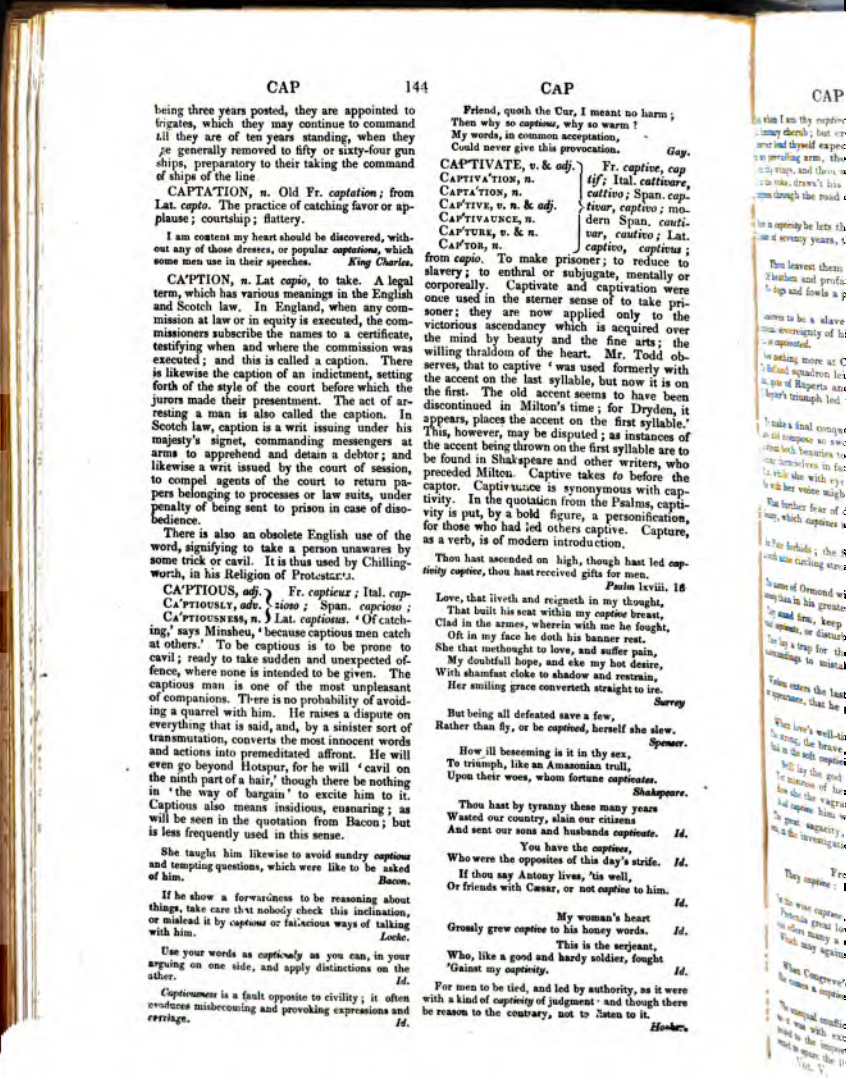
Captain Bashaw, or **Capou'dan Bashaw**, the Turkish high admiral. He holds the third office in the empire, and is invested with the same power at sea that the vizier has on shore. He has absolute authority over the officers of the marine and arsenal, whom he may punish, cashier, or put to death, as soon as he is without the Dardanelles. He commands in chief in all the maritime countries, cities, castles, &c.; and at Constantinople, is the first magistrate of police in the villages on the side of the Porte, and the canal of the Black Sea. The mark of his authority is a large Indian cane, which he carries in his hand, both in the arsenal and with the army. His chief revenue arises from a capitation of the islands in the Archipelago, and certain governments in Natolia and Gallipoli. He also receives the pay of all men who die during a campaign; a fifth of all prizes made by the begs; and he exacts contributions in all places where he passes.

Captain Lieutenant, an officer, who, with the rank of captain, but the pay of lieutenant, commands a troop or company in the name of some other person, who is dispensed with on account of his quality from performing the functions of his post. Thus the colonel being usually captain of the first company of his regiment, that company is commanded by his deputy as captain lieutenant.

Captain of a Company or Troop, a commissioned officer, who commands a company of foot, or a troop of horse, under a colonel. The duty of this officer is to be careful to keep his company full of able bodied soldiers; to visit their tents and lodgings, to see what is wanting; to cause them to keep themselves neat and clean in their clothes, and their arms bright. He has power in his own company to make serjeants and corporals, and lance-corporals. In the horse and foot-guards, the captains have the rank of lieutenant-colonels of the army.

Captain of a Merchant Ship, he who has the direction of the ship, her crew, lading, &c. In small ships, and short voyages, he is more ordinarily called the master. In the Mediterranean, he is called the patroon.—The proprietor of the vessel appoints the captain or master; and he is to form the crew, and choose and hire the pilots, mates, and seamen; though when the proprietor and master reside on the same spot, they generally act in concert together.

Captain, Post, an officer commanding any vessel of war from a ship of the line down to a ship-rigged sloop. Formerly, a twenty-gunned ship was the smallest that gave post rank, but by a late regulation of the Lords Commissioners of the Admiralty, the largest class of ship sloops has been added to the list of post-ships, and post-captains under three years standing are now appointed to them, unless they happened to be selected as flag-captains to admirals' ships; after



being three years posted, they are appointed to frigates, which they may continue to command till they are of ten years standing, when they are generally removed to fifty or sixty-four gun ships, preparatory to their taking the command of ships of the line

CAPTA'TION, *n.* Old Fr. *captation;* from Lat. *capto.* The practice of catching favor or applause; courtship; flattery.

> I am content my heart should be discovered, without any of those dresses, or popular *captations,* which some men use in their speeches. *King Charles.*

CA'PTION, *n.* Lat *capio,* to take. A legal term, which has various meanings in the English and Scotch law. In England, when any commission at law or in equity is executed, the commissioners subscribe the names to a certificate, testifying when and where the commission was executed; and this is called a caption. There is likewise the caption of an indictment, setting forth of the style of the court before which the jurors made their presentment. The act of arresting a man is also called the caption. In Scotch law, caption is a writ issuing under his majesty's signet, commanding messengers at arms to apprehend and detain a debtor; and likewise a writ issued by the court of session, to compel agents of the court to return papers belonging to processes or law suits, under penalty of being sent to prison in case of disobedience.

There is also an obsolete English use of the word, signifying to take a person unawares by some trick or cavil. It is thus used by Chillingworth, in his Religion of Protestants.

CA'PTIOUS, *adj.}*
CA'PTIOUSLY, *adv.*
CA'PTIOUSNESS, *n.* }
Fr. *captieux;* Ital. *capzioso;* Span. *capcioso;* Lat. *captiosus.* 'Of catching,' says Minsheu, 'because captious men catch at others.' To be captious is to be prone to cavil; ready to take sudden and unexpected offence, where none is intended to be given. The captious man is one of the most unpleasant of companions. There is no probability of avoiding a quarrel with him. He raises a dispute on everything that is said, and, by a sinister sort of transmutation, converts the most innocent words and actions into premeditated affront. He will even go beyond Hotspur, for he will 'cavil on the ninth part of a hair,' though there be nothing in 'the way of bargain' to excite him to it. Captious also means insidious, ensnaring; as will be seen in the quotation from Bacon; but is less frequently used in this sense.

> She taught him likewise to avoid sundry *captious* and tempting questions, which were like to be asked of him. *Bacon.*

> If he show a forwardness to be reasoning about things, take care that nobody check this inclination, or mislead it by *captious* or fallacious ways of talking with him. *Locke.*

> Use your words as *captiously* as you can, in your arguing on one side, and apply distinctions on the other. *Id.*

> *Captiousness* is a fault opposite to civility; it often produces misbecoming and provoking expressions and carriage. *Id.*

> Friend, quoth the Cur, I meant no harm;
> Then why so *captious,* why so warm?
> My words, in common acceptation,
> Could never give this provocation. *Gay.*

CAP'TIVATE, *v.* & *adj.*
CAPTIVA'TION, *n.*
CAPTA'TION, *n.*
CAP'TIVE, *v. n.* & *adj.*
CAP'TIVAUNCE, *n.*
CAP'TURE, *v.* & *n.*
CAP'TOR, *n.*
Fr. *captive, captif;* Ital. *cattivare, cattivo;* Span. *captivar, captivo;* modern Span. *cautivar, cautivo;* Lat. *captivo, captivus;* from *capio.* To make prisoner; to reduce to slavery; to enthral or subjugate, mentally or corporeally. Captivate and captivation were once used in the sterner sense of to take prisoner; they are now applied only to the victorious ascendancy which is acquired over the mind by beauty and the fine arts; the willing thraldom of the heart. Mr. Todd observes, that to captive 'was used formerly with the accent on the last syllable, but now it is on the first. The old accent seems to have been discontinued in Milton's time; for Dryden, it appears, places the accent on the first syllable.' This, however, may be disputed; as instances of the accent being thrown on the first syllable are to be found in Shakspeare and other writers, who preceded Milton. Captive takes *to* before the captor. Captivaunce is synonymous with captivity. In the quotation from the Psalms, captivity is put, by a bold figure, a personification, for those who had led others captive. Capture, as a verb, is of modern introduction.

> Thou hast ascended on high, though hast led *captivity captive,* thou hast received gifts for men. *Psalm* lxviii. 18

> Love, that liveth and reigneth in my thought,
> That built his seat within my *captive* breast,
> Clad in the armes, wherein with me he fought,
> Oft in my face he doth his banner rest.
> She that methought to love, and suffer pain,
> My doubtfull hope, and eke my hot desire,
> With shamfast cloke to shadow and restrain,
> Her smiling grace converteth straight to ire.
> *Surrey*

> But being all defeated save a few,
> Rather than fly, or be *captived,* herself she slew.
> *Spenser.*

> How ill beseeming is it in thy sex,
> To triumph, like an Amazonian trull,
> Upon their woes, whom fortune *captivates.*
> *Shakspeare.*

> Thou hast by tyranny these many years
> Wasted our country, slain our citizens
> And sent our sons and husbands *captivate.* *Id.*

> You have the *captives,*
> Who were the opposites of this day's strife. *Id.*

> If thou say Antony lives, 'tis well,
> Or friends with Cæsar, or not *captive* to him.
> *Id.*

> My woman's heart
> Grossly grew *captive* to his honey words. *Id.*

> This is the serjeant,
> Who, like a good and hardy soldier, fought
> 'Gainst my *captivity.* *Id.*

> For men to be tied, and led by authority, as it were with a kind of *captivity* of judgment · and though there be reason to the contrary, not to listen to it. *Hooker.*

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Then when I am thy *captive* talk of chains,
Proud limitary cherub; but ere then
Far heavier load thyself expect to feel
From my prevailing arm, though heaven's king
Ride on thy wings, and thou with thy compeers,
Used to the yoke, draws't his triumphant wheels
In progress through the road of heaven star-paved.
Milton's Paradise Lost.

There in *captivity* he lets them dwell
The space of seventy years, then brings them back.
Id.

Thou leavest them to hostile sword
Of heathen and profane, their carcasses
To dogs and fowls a prey, or else *captived.*
Id. Samson Agonistes.

He deserves to be a slave that is content to have the rational sovereignty of his soul, and the liberty of his will so *captivated*. *King Charles I.*

Now nothing more at Chatam's left to burn,
The Holland squadron leisurely return;
And, spite of Ruperts and of Albermarles,
To Ruyter's triumph led the *captive* Charles.
Marvell.

To make a final conquest of all me,
Love did compose so sweet an enemy,
In whom both beauties to my death agree,
Joining themselves in fatal harmony;
That, while she with eyes my heart doth bind,
She with her voice might *captivate* my mind. *Id.*

What further fear of danger can there be?
Beauty, which *captives* all things, sets me free.
Dryden.

But Fate forbids; the Stygian floods oppose,
And with nine circling streams the *captive* souls enclose.
Id.

The name of Ormond will be more celebrated in his *captivity* than in his greatest triumphs. *Id.*

They stand firm, keep out the enemy truth, that would *captivate*, or disturb them. *Locke.*

They lay a trap for themselves, and *captivate* their understandings to mistake, falsehood, and error.
Id.

Wisdom enters the last, and so *captivates* him with her appearance, that he gives himself up to her.
Addison.

When love's well-timed, 'tis not a fault to love;
The strong, the brave, the virtuous, and the wise,
Sink in the soft *captivity* together. *Id.*

Still lay the god: the nymph surprised,
Yet mistress of herself, devised
How she the vagrant might enthrall,
And *captive* him who *captives* all. *Prior.*

The great sagacity, and many artifices, used by birds, in the investigation and *capture* of their prey.
Derham.

Free from shame,
They *captive*: I ensure the penal claim.
Pope's Odyssey.

Yet the wise *captive*, meeting art with art,
Pretends great love to princely Hubert's side;
And offers many a secret to impart,
Which may against his foe's strong arms provide.
Gay.

When Congreve's favoured pantomime to grace,
She comes a *captive* queen of Moorish race.
Churchill.

The unequal conflict was terminated in fifteen days; and it was with extreme reluctance that Mahomet yielded to the importunities of his allies, and consented to spare the lives of the *captives*. *Gibbon.*

Alas! full oft on guilt's victorious car,
The spoils of virtue are in triumph borne,
While the fair *captive*, marked with many a scar,
In long obscurity oppressed, forlorn,
Resigns to tears her angel form. *Beattie.*

Hope not, though all that *captivates* the wise,
All that endears the good, exalt thy praise,
Hope not to taste repose, for envy's eyes
At fairest worth still point her deadly rays. *Id.*

Though fairest *captives* daily met his eye,
He shunned, not sought, but coldly passed them by.
Byron's Corsair.

CAPTIVES formerly became the slaves of those who took them; and though slavery, such as obtained among the ancients, is now abolished, some shadow of it still remains in respect of prisoners of war, who are accounted the property of their captors. The Romans used their captives with great barbarity; their necks were exposed to the soldiers to be trampled on, and their persons afterwards sold by public auction. Captives were frequently burnt in the funeral piles of the ancient warriors, as a sacrifice to the funeral gods. Those of royal or noble blood had their heads shaven, and their hair sent to Rome to serve as decorations for female toys, &c. They were led in triumph, loaded with chains, as far as the foot of the Capitoline Mount, for they were not permitted to ascend the sacred hill, but carried thence to prison. Those of quality were honored with golden chains on their hands and feet, and golden collars on their necks. If they made their escape, or killed themselves, to avoid the ignominy of being carried in triumph, their effigies were frequently carried in their place.

CAPTURE is particularly applied to a ship taken at sea. Captures made at sea were formerly held to be the property of the captors after a possession of twenty-four hours; but the modern authorities require, that before the property can be changed, the goods must have been brought into port, and have continued a night intra præsidia, in a place of safe custody, so that all hope of recovering them was lost. Capture is likewise used for an arrest or seizure of a criminal, debtor, &c. at land.

CAPUA, in ancient geography, a very ancient city of Italy, in Campania, and capital of that district. It was a settlement of the Osci before the foundation of Rome, and as the amazing fertility of the land, and a lucrative commerce, poured immense wealth upon its inhabitants, it became one of the most extensive and magnificent cities in the world. With riches excessive luxury crept in, and the Capuans soon lost the power of repelling those nations whom their insolence had exasperated. Roman aid was asked and granted, but the soldiers sent to defend it wished to make it their prey. Jealous of the avarice and ambition of Rome, the Capuans warmly espoused the quarrel of Carthage, and Hannibal made Capua his winter quarters after the battle of Cannæ; and there his hitherto invincible soldiers were enervated by pleasure and indolence. When, through a failure of supplies from Carthage, Hannibal was under the necessity of leaving the Capuans to defend themselves, this city, which had long been invested, was surrendered at discretion to the consuls Appius Claudius and Q. Fulvius Flaccus. The senators were put to death, the nobles imprisoned for life, and all the citizens sold and dispersed, except Vibius and his friends, who killed themselves. The buildings were spared by the victor; and Capua was left to be a harbour for the husbandmen, a warehouse for goods, and a granary for corn. Colonies were sent to inhabit it, and in process of time it regained a degree of its importance. But Genseric the Vandal was more cruel than the Romans, for he massacred the inhabitants, and burned the town. Narses rebuilt it; but in 841 it was totally destroyed by the Saracens, and the inhabitants driven to the mountains. Since the foundation of the new city, the ancient Capua has remained in ruins.

Capua, in modern geography, is a neat little city of Naples, in Terra di Lavoro, built on part of the site of old Capua. It owes its origin to the Lombard inhabitants of the old city, who, some time after the departure of the Saracens, ventured down again into the plain; but, not deeming their force equal to the defence of their former extensive circuit, built a smaller town on the banks of the Volturno, and on the site of the ancient Casilinum. In 856 Landulph formed here an independent earldom, and in the course of a few generations Capua acquired the title of a principality. In the eleventh century the Normans of Aversa expelled the Lombard race of princes, and Richard their chief became prince of Capua. The grandson of Tancred of Hauteville drove out the descendants of Richard, and united this state to the rest of his possessions. Capua is at present fortified according to the rules of modern art, and may be considered as the key of the kingdom; though far removed from the frontier, it is the only fortification that really covers the approach to Naples. It was, however, taken by the French, under general Championnet, on the 11th January, 1797. It is fifteen miles north-east of Naples, and 100 south-east of Rome. Long. 15° 7′ E., lat. 11° 26′ N.

CAPUCHINS, religious of the order of St. Francis in its strictest observance; deriving their name from capuce, or capuchon, a stuff cowl, wherewith they cover their heads. They are clothed with brown or gray; always bare-footed; never go in a coach, nor ever shave their beards. They are a reform from the order of Minors, commonly called cordeliers, set on foot in the sixteenth century by Matthew Baschi, who pretended to have been advised from heaven to practise the rule of St. Francis to the letter. Pope Clement VII, in 1525, gave him permission to retire into solitude, with as many others as chose to embrace the strict observance, and in 1528 they obtained his bull. In 1529 the order was brought into complete form; Matthew was elected general, and the chapter made constitutions.

CAPUENA, in icthyology, a fish caught in the American seas, and esteemed very delicate. It is round shaped, and usually about five inches long.

CAPURA, in botany, a genus of the monogynia order, belonging to the hexandria class of plants. C. purpurata, is a native of the East Indies.

CAPUT, the head. See Head, Skull, Face, and Anatomy.

Caput Baroniæ, the head of the barony, or Caput Honoris, the head of the honor, in ancient customs, denoted the chief seat of a nobleman, where he made his usual residence, and held his court. It could not be settled in dowry; nor could be divided among the daughters, in case there were no son to inherit; but was to descend entire to the eldest daughter, cæteris filiabus aliunde satisfactis.

Caput Gallinaginis, in anatomy, is a kind of septum, or spongious border, at the extremities or apertures of each of the vesiculæ seminales; serving to prevent the semen coming from one side, from rushing upon, and so stopping the discharge of the other.

Caput Lupinum, a term anciently applied to an outlawed felon, who might be knocked on the head like a wolf, by any one that met him; because, having renounced all law, he was to be dealt with as in a state of nature, when every one that should find him might slay him. But now it is holden that no man is entitled to kill him wantonly and wilfully; but in so doing he is guilty of murder, unless it is done in the endeavour to apprehend him.

Caput Mortuum, a name given by old chemists to fixed and exhausted residuums remaining in retorts after distillations. As these residuums are very different, according to the substances distilled, and the degree of heat employed, they are by the more accurate modern chemists particularly specified.

CAQUETA, a river of South America, which rises in the province of Quito, near the ancient city of Macao at the western base of the Andes, in the lat. of 2° N., from whence it runs in an E. S. E. direction towards the equator. Before it crosses the equator it communicates with another stream or channel of waters, running in a north-east direction; this channel is called the Negro, and is supposed to communicate with the Orinoco, whilst the main branch runs in a south-east direction to the Amazons, into which it falls in the lat. of 4° S.; this branch of the Caqueta is sometimes called the Japura Yupina, and some Portuguese adventurers in 1744 are said to have reached the Orinoco from the Amazons by this stream and that of the Negro; a circumstance which the Prussian traveller Humboldt has since said to have confirmed as practicable; having himself passed from one river to another in a canoe, he no doubt believes that there is a union of the waters of those two noble rivers; but high as his authority stands, further evidence is still wanting, as the Negro after running north-east for about 160 miles, then runs east, bearing a little south for upwards of 100 miles, when it takes a course parallel with the Japura into the Amazons about eighty miles lower down, first receiving the waters of lake Parima; this branch in its south-east course is called the Great Negro, and, being far more capacious than the Japura, has probably been mistaken for the Orinoco. It is not impossible, however, but that some of the collateral streams of this branch may in the rainy season communicate with some of the collateral branches of the Orinoco in the lat. of about 3° N. From the point where the Negro branches off to the north-east, another stream diverges more to the west, and runs parallel with the

Japura at a distance of about eighty miles into the Amazons.

CAR, Char, in the names of places, seems to have relation to the Britisn *caer*, a city. *Gibson's Camden.*

Car, *n.* } Lat. *carrus*; Fr. *char*; Ital.
Car'man, *s.* } and Sp. *carro*; Welsh and Armor. *car*; Sw. *karra*; Ger. and Dut. *karre*. A small carriage of burden, says Johnson, usually drawn by one horse or two. I suspect that the word is now seldom employed in this sense in England; its diminutive, cart, being the denomination of such vehicles; though the name is still retained in the compound, car-man. In Ireland, however, car is in common use, and is applied to various sorts of conveyances; among which is the jaunting car, a kind of carriage for excursions of pleasure. The word is more extensively known in its poetical meaning, that of a dignified or splendid vehicle; a war or triumphal chariot. The car of day is the solar luminary; the 'silver car' of Cynthia is the moon. Dryden gives the name of the northern car to the constellation, Charles' wain, or the bear.

> Henry is dead, and never shall revive:
> Upon a wooden coffin we attend,
> And death's dishonorable victory,
> We with our stately presence glorify,
> Like victors bound to a triumphal *car*.
> *Shakspeare.*
>
> Wilt thou aspire to guide the heavenly *car*,
> And with thy daring folly burn the world? *Id.*
>
> And the gilded *car* of day,
> His glowing axle doth allay
> In the steep Atlantic stream. *Milton.*
>
> Every fixt and every wandering star,
> The Pleiads, Hyads, and the Northern *Car*.
> *Dryden.*
>
> See where he comes, the darling of the war!
> See millions crowding round the gilded *car*.
> *Prior.*
>
> When a lady comes in a coach to our shop, it must be followed by a *car* loaded with Wood's money.
> *Swift.*
>
> If the strong cane support thy walking hand,
> Chairmen no longer shall the wall command;
> Even sturdy *carmen* shall thy nod obey,
> And rattling coaches stop to make a way.
> *Gay. Trivia.*
>
> Now Venus mounts her *car*; she shakes the reins,
> And steers her turtles to Cythera's plains;
> Straight to the grot with graceful step she goes,
> Her loose ambrosiac hair behind her flows. *Gay.*
>
> And many a band of ardent youths were seen,
> Some in rapture fired by glory's charms;
> Or hurled the thundering *car* along the green,
> Or march'd embattled on in glittering arms.
> *Beattie.*

Car, in archæology, a sort of carriage drawn by beasts of burden; a war chariot. In different ancient examples, cars are represented either with two or four wheels, drawn by different animals; as horses, mules, elephants, lions, panthers, &c. The invention of cars is attributed by some to Erichthonius, king of Athens, whose distorted legs prevented his walking; by others to Triptolemus, or Trochilus. The Athenians dedicated them to Pallas. The coursing cars or chariots were also used in public festivities and games; these were in the form of a shell mounted upon two wheels, higher before than behind, and ornamented with painting and sculpture. When they were drawn by two horses, they were called bigæ, when with three trigæ, and quadrigæ when they were drawn by four horses, which were always abreast.

The covered cars (currus arcuati), which were in use among the Romans, differed from the others only by having an arched covering above Some of the eastern nations used, in their wars, cars armed with scythes and other cutting instruments on the wheels; they were drawn by strong horses, and made dreadful havoc in the army of their enemies. Triumphal cars were often executed in marble. One is preserved in the museum of the Vatican at Rome. The use of triumphal cars was introduced, according to some, by Romulus, and to others by Tarquin the elder, or Valerius Poplicola.

The cars of the different divinities are drawn by those animals which are sacred to each; as that of Mercury by rams, of Minerva by owls, that of Venus by swans or doves, that of Apollo by griffins, of Juno by peacocks, and that of Diana by stags.

CARA, a river of European Russia, which directs its course towards the Arctic Ocean, and forms the boundary between Asia and Europe, for the space of about 140 miles; the Arabian chain terminating so far from the sea of Caraskoi, or Karskoi.

CAR'ABINE, or } Fr. *carabine*; Ital. *ca-*
Car'bine, *n.* } *rabino*; Ger. *carabiner*;
Carabin'ier, or } Swed. *karbin*; diminutive,
Carbin'ier, *n.* } says Thompson, of *carrabalistan*, a field bow mounted on a carriage, attached formerly to cavalry. The carabine, called also a petronel, is a small sort of fire arm, shorter than a fusil, and carrying a ball of twenty-four in the pound, hung by the light horse at a belt over the left shoulder. It is a kind of medium between the pistol and the musket, having its barrel two feet and a half long. It is generally rifled.

> He with his whole troop advanced from the gross of their horse, and discharging all their pistols on the ground, within little more than *carabine* shot of his own body, presented himself and his troop to Prince Rupert; and immediately, with his highness, charged the enemy. *Clarendon.*

CARABINS, otherwise called argoulets, were a species of hussars in the ancient French militia, and sometimes acted on foot. They were chosen and resolute men. All the principal officers of the army used to have them as their guards. And they were often stationed at the outposts for the purpose of harassing the enemy, guarding narrow passes, &c. In action they generally engaged in front of the dragoons, or on the wings of the first line. The term comes from the Arabian word Karab, which signifies generally a warlike instrument of any kind.

CARABUS, in zoology, a genus of insects of the order of coleoptera, or the beetle. The feelers are bristly; the breast is shaped like a heart, and marginated; and the elytra are likewise marginated. There are 324 known species of this genus, mostly distinguished by their color. The most remarkable is C. crepitans, the bombardier, with the breast, head, and legs, ferruginous or iron colored, and the elytra black. It keeps itself concealed among stones, and seems to make little use of its wings: when it moves, it is by a sort of jump; and, whenever it is touched, one is surprised to hear a noise resembling the discharge of a musket, in miniature, during which a blue smoke may be perceived to proceed from its anus. It may be made at any time to play off its artillery, by scratching its back with a needle. Rolandet, who first made these observations, says it can give twenty discharges successively. A bladder placed near the anus is the arsenal whence it derives its store; and this is its chief defence against an enemy, although the smoke emitted seems to be altogether inoffensive, except by causing a fright, or concealing its course. Its chief enemy is another species of the same genus, but four times larger: when pursued and fatigued, the bombardier has recourse to this stratagem, by lying down in the path of the large carabus, which advances with open mouth and claws to seize it; but, on this discharge of the artillery, suddenly draws back, and remains awhile confused: during which the bombardier conceals himself in some neighbouring crevice. If he does not find one, the large carabus returns, takes the insect by the head, and tears it off.

CARACALLA (M. Antoninus Bassianus), succeeded his father Severus, on the imperial throne of Rome, A. D. 211, and put the physicians to death for not despatching him as he would have had them. He killed his brother Geta; and put Papinianus to death because he would not defend his parricides. He married Julia, his father's widow. Going to Alexandria, he massacred almost the whole of the inhabitants. See ALEXANDRIA. In short, no fewer than 20,000 persons were murdered by his orders. At last, going from Edessa to Mesopotamia, one of his captains slew him in the seventh year of his reign.

CARACALLA, in antiquity, a long garment, having a sort of capuchin, or hood a-top, and reaching to the heels; worn among the Romans by both men and women, in the city and the camp. Spartian and Xiphilin represent the emperor Caracalla as the inventor of this garment, and hence suppose that appellation was first given him. Others, with more probability, make the caracalla originally a Gallic habit brought to Rome by that emperor, who first enjoined the soldiery to wear it, and from whom the people also called it antoninian. St. Jerome informs us that the caracalla, with a retrenchment of the capuchin, became an ecclesiastical garment. It is described as made of several pieces cut and sewed together, and hanging down to the feet.

CARACCAS, or CARACAS, a department, province, and city, of Colombia, South America. The department of Caraccas includes the provinces of Caraccas Proper and Barinas: the residence of the intendancy or departmental government being in the city of Caraccas. The population of this department is about 550,000

The province of Caraccas in its climate, natural scenery, and fertility, is nowhere transcended. On the coasts the heat is indeed, at particular seasons, almost overpowering to Europeans,—La Guayra being, according to Humboldt's observations, one of the hottest places on the earth; but in the mountain valleys of the interior, and beside its refreshing streams, the atmosphere is mild, pure, and exquisitely sweet. The soil yields all the usual productions of the West Indies in rich abundance, and is exceedingly favorable to cochineal, dye-woods, gums, resins, sarsaparilla, sassafras, liquorice, squills, storax, cassia, aloes, and medicinal drugs: as also to maize, vanilla, cotton, indigo, sugar, tobacco, and coffee; but its staple article is cocoa, of a very superior quality. Immense herds of cattle, sheep, and deer, graze on the plains of the interior, where also horses and mules are found in considerable numbers, and all kinds of game. The forests produce every kind of useful and ornamental wood—black, red, and yellow ebony; mahogany and cedar are very common, so that the last is used for door-posts and window-frames as frequently as deal with us. The Spaniards first introduced cocoa-trees and indigo here; the former at an early period of their conquest; the latter in 1774.

La Guayra is the principal port of the province, and only five leagues from the capital, with which it communicates by a noble road. A chain of mountains, which separate it from the high valley of Caraccas, descends directly into the sea; so that the houses of La Guayra are backed with almost perpendicular rocks, and stones rolling from them frequently occasion accidents to the town. It contains but two parallel streets, running east and west, and about 7000 inhabitants. The streets are ill-paved and narrow, and the houses generally mean. The only singular objects here are the batteries, which are well disposed and kept in good order: that of Cerrocoloredo commands the roadstead. This is open to all winds, never exceeds eight fathoms in depth at a quarter of a league from the beach, and the sand so quickly buries the anchors of vessels remaining here, that they are obliged to be removed every eight days. The annual amount of its exports is said to be about £347,000, in cocoa, indigo, coffee, and hides; and the imports about 520,000, all the goods being purchased as well as sold at Caracas, and only loaded or unloaded here. The men who carry the cocoa on board the ships are remarkable for their muscular strength; and, though they frequently wade up to their breasts in the water, are never molested by the sharks that are so abundant in this part. The inhabitants say that a bishop once gave his benediction to all who should appear here, and thus tamed their nature! We are indebted to colonel Hale's interesting little work entitled Colombia, for the following:—

I. Return of the Exports of La Guayra, during the Year, ending January, 1824, together with their Value, agreeably to the Registers of the Custom House; also the Duties arising thereon.

	Mahogany.	Cocoa.		Coffee.		Indigo.	Hides.	Cotton.	Vanilla.	Sarsaparilla.		Calaguala.		Hellebore.		Molasses.	Sweetmeats.	Garlic.	Horns.	Value of the Cargoes.	Duties.
	Planks.	Fana.	lbs.	Quin.	lbs.	lbs.	No.	Quin.	lbs.	Qn.	lbs.	Qn.	lbs.	Qn.	lbs.	in barrels.	in boxes.	in strings.	No.	Dollars.	
January . .	—	1747	56	2139	25	20300	2452	18	289	11	64	—	—	18	96	—	—	636	—	100209 7	9916 7
February .	—	2739	9	6289	96	15963	1515	93	—	3	80	—	—	—	—	—	—	50	—	199214 4½	19837 3
March . . .	—	3853	17	4152	1	10300	797	—	—	—	—	—	—	—	—	—	—	—	—	158536 5	15808 3
April	—	3930	91	6250	22	2700	998	397	—	15	82	—	—	—	—	—	—	375	—	191410 2½	19122 1½
May	—	5193	51	7906	84	21600	1854	27	—	7	65	—	—	3	01	—	—	—	—	268468 3½	26815 5
June	—	3938	44	4200	24	5100	629	599	—	3	56	—	—	—	—	—	—	—	—	158731 5	15869 6
July	—	2048	33	3226	74	2400	1759	500	—	6	80	—	—	—	—	—	—	—	—	104583 2	10535 2
August . . .	10	6719	76	1560	48	6200	2396	21	—	13	96	—	—	—	—	—	—	—	—	159401 1	15920 5
September	—	2312	14	948	88	15350	1243	—	—	7	92	—	—	3	—	—	—	—	—	81178 ½	8102 6½
October . .	—	1093	10	1046	36	36500	2017	494	—	—	—	—	—	—	—	—	—	—	—	88488 7½	8846 1
November .	—	1547	63	1104	81	28000	2649	—	—	—	—	—	—	—	—	25	10	—	—	89451 4	8930 7
December	—	303	66	515	7	94695	1699	34	—	10	50	4	50	64	4	—	1	550	3050	48682 6	4815 1½
	10	35426	90	39341	56	259108	20008	2183	289	81	65	4	50	89	10	25	11	1611	3050	1648356 7½	164521 ½

Note.—Over and above the foregoing articles, there have been exported 1146 bales of Varinas tobacco, weighing 108,660 lbs., which, having been sold at the tobacco warehouse, have not been valued, nor charged with duties.

Guayra, Jan. 15, 1824.

J. M. De Rojas.

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II. *Revenue of the Port of La Guayra, from the 1st of January to the 31st of October*, 1823, *taken from the* OFFICIAL RETURN.

	Dollars.
Import Duties	515,609 0½
Export ditto	153,101 3½
Tonnage ditto	5,778 3½
Salt ditto	4,083 1½
Anchorage ditto	414 0
Prizes	105,552 3
Duties appropriated to the Military Hospital	6,038 0½
	790,576 2½

The city of Caraccas is situate in 10° 30′ 15″ N. lat., and 67° 4′ 45″ W. long., at the entrance of the plain of Chacao, which extends three leagues east towards Cauriman and the Cuesta de Auyamas, and is two leagues and a half broad. This plain, through which runs the river Guayra, is 414 toises above the level of the sea; three other rivers (very small) cross the town from north to south. Its climate has been called a perpetual spring. The temperature is generally between 20° and 26° in the day, and 16° and 18° at night. But this general mildness is connected with great fluctuations in the weather. Humboldt sometimes, among the vapors of November and December, could scarcely think himself in one of the temperate valleys of the torrid zone; but rather in the north of Germany, among the pines and the larches overshadowing the mountains of the Hartz. The following have been given as the differences of climate between Caraccas and La Guayra:—

	Caraccas. Height 454 Toises.	LaGuayra. Level of the Sea.
Mean temp. of the year	21° to 22°	28°
Mean temp. of the hot season . . .	24	29
Mean temp. of the cold season . . .	19	23·5
Maximum	29	35
Minimum	11	21

The streets of Caraccas are straight, well paved, and well built, intersecting each other at right angles, and at a distance of about three hundred feet: there are eight squares, if such they may be called, five of them being very irregular enclosures; but the plaça major, occupying about 300 square feet, and the great market of the city, is a respectable collection of buildings, public and private. On the east is the cathedral, and on the same side begin the barracks, continued round to the south. In the market abundance of every kind of provision is to be found. Fruits, vegetables, meat, salted provisions, poultry, fish, game, bread, monkeys, parrots, &c. The churches of Candelaria and St. Paul are the only distinctions of the other squares worth naming. The houses of many individuals are well built, and of handsome appearance; being generally of masonry, with frame-work, after the Roman manner, or of brick. Humboldt thought them only too high in a region so subject to earthquakes as Caraccas. Those of the respectable inhabitants are neatly and even superbly furnished. 'We behold in them,' says an anonymous, but respectable description of Colombia, 'beautiful glasses; at the windows, and over the inside doors, elegant curtains of crimson damask; chairs, and sofas made of wood, the seats of which, covered with leather or damask, are stuffed with hair and adorned with Gothic work, but overloaded with gilding; bedsteads with deep headboards, showing nothing but gold, covered by superb damask counterpanes, and a number of down pillows in fine muslin cases, trimmed with lace. There is seldom, it is true, more than one bed of this magnificence in each house, which is in general the nuptial couch, and afterwards serves as a bed of state. The eye wanders also over tables with gilded feet; chests of drawers, on which the gilder has exhausted all the resources of his art; brilliant lustres, suspended in the principal apartments; cornices, which seem to have been dipped in gold; and rich carpets, covering at least all that part of the room where the seats of honor are placed: for the parlour furniture is disposed in such a manner, that the sofa, which constitutes the most essential article of household attire, is situate at one end, with the chairs arranged on the right and left; and opposite, the principal bed of the house, placed at the other extremity of the room, in a chamber, the door of which is open, unless it be fixed in an alcove equally open, and by the side of the seats of honor.

'Except the barracks, Caraccas possesses scarcely any public edifices but those dedicated to religion, viz. eight churches and five convents. The barracks, which will hold 2000 men, are handsome, and situate on a spot commanding beautiful views. They are storied, with a double yard, and occupied by the troops of the line alone. The militia have their barracks in the opposite part of the city. Here is also a college, founded in 1778 by the bishop Antonio Gonzalez d'Acuna, and converted into a university in 1792; and a theatre, which will hold 1500 or 1800 persons. The population in 1812 was 50,000, when, in the great earthquake on the 12th of March, 12,000 are supposed at once to have perished. The late political convulsions are supposed to have farther reduced the present population of the city to 20,000.

'It is divided between whites, negroes, and a few Indians. The first are either merchants, planters, professional, or military men; very proud, and disdaining all kinds of labor. 'The women of Caraccas are seldom blondes; but, with hair of the blackness of jet, they have the white of alabaster. Their eyes, large and finely shaped, speak, in an expressive manner, that language which is of all countries. The carnation of their lips is finely softened by the whiteness of their skins, and concurs to form that ensemble which we denominate beauty. Their stature does not correspond with their shape: we see few above the middle size, many below. It would be losing time to search for pretty feet:

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as they pass a great portion of their lives at their windows, one would say, that nature had wished to embellish only that part of their bodies which they expose to view. Their gait also is deficient in grace.'

The luxury of European capitals is by no means unattainable at Caraccas. The Spanish gravity and the Creole voluptuousness are seen in singular combination. The inhabitants of this and the other towns of Colombia seldom dine with each other, and are on the whole temperate; but they give frequent collations of coffee, chocolate, tea, cakes, and wine, when they display their porcelain and fine glass, and the ladies, both old and young, appear in all their attractions.

Before the revolution every house of respectability was encumbered by a vast train of domestic slaves. Religious festivals are so frequent at Caraccas, that there are very few days in the year on which they do not celebrate some saint, and what multiplies them almost to infinity is, that every festival is preceded by a neuvaine, or succession of nine days, consecrated to prayer; and followed by an octave, or succession of eight days, during which to their prayers the faithful join public amusements, such as fire-works, concerts, &c.: the most brilliant part of their festivals is the procession of the saint who is celebrated. When the men go to church they must always wear a coat, great coat, or cloak, and the women, rich or poor, especially the whites, are rigorously required to be in black. Their dress on this occasion generally consists in a petticoat and veil of black. Negroes only have a white veil. Posts are now forwarded regularly and periodically, from the capital only, for Maracaibo, Porto Cavello, Santa Fé, Cumana, and Guiana. All the towns lying on the road to these places enjoy the advantages of the mail. All the roads of the country are under the direct control of the Government.

The coast of the Caraccas was discovered by Columbus in 1498, during his third voyage to the western world. In 1550 the former captain-generalship of the Caraccas was established, and ultimately contained nearly 48,000 square leagues (twenty-five to a degree) and a million of inhabitants. It existed, with some slight variations of territory, to the revolution in 1810, see COLOMBIA, and comprehended the province of Venezuela, in the centre; the government of Maracaibo, westward; Guiana, south; Cumana, east; and the island of Margaretta.

CARACCI (Lewis, Augustin, and Hannibal), three celebrated painters of Bologna. Lewis was born in 1555; and was cousin-german to Augustin and Hannibal, who were brothers, the sons of a tailor, who gave them a liberal education. They were both disciples of their cousin Lewis. Augustin gained a knowledge of mathematics, natural philosophy, music, poetry, and most of the liberal arts: but, though painting was his principal pursuit, he learned the art of engraving from Cornelius Cort, and surpassed all the masters of his time. Hannibal never deviated from his pencil. These three painters, at length formed a plan of association, and founded that celebrated school, called Caracci's Academy. Hither the young students resorted to be instructed in the rudiments of painting; here the Caracci taught freely all that came. Lewis's charge was to make a collection of antique statues and bas-reliefs. They had designs of the best masters; a collection of curious books on all subjects relating to their art; and a skilful anatomist to teach what belonged to the knitting and motions of the muscles, &c. There were often disputations in the academy; and the literati, as well as painters, proposed questions, which were always decided by Lewis. The fame of the Caracci reaching Rome, the cardinal Farnese sent for Hannibal, to paint the gallery of his palace. Hannibal willingly went, having a great desire to see Raphael's works, with the antique statues, &c. The gusto which he took there from the ancient sculpture, made him change his Bolognian manner for one more learned, but less natural in the design and coloring. Augustin followed Hannibal, to assist him in the Farnese gallery; but the brothers not agreeing, Farnese sent Augustin to the court of Parma, where he died in 1602, aged forty-five. His most celebrated piece is the communion of St. Jerome, in Bologna. In the meanwhile, Hannibal continued working in the Farnese gallery at Rome; and, after eight years labor, finished the paintings in the perfection in which they are still to be seen; but the cardinal, influenced by ignorance and avarice, gave him but a little above £200. This confirmed him in a melancholy, to which his temper naturally inclined, and made him resolve never more to touch his pencil; which resolution he had undoubtedly kept, if his necessities had not compelled him to break it. It is said that his melancholy gained so much upon him, that at times it affected his reason. It did not, however, put a stop to his amours; and his debaucheries at Naples, whither he had retired for the recovery of his health, brought a distemper upon him, of which he died in 1609, in his forty-ninth year. His veneration for Raphael was so great, that it was his death-bed request to be buried in the same tomb with him; which was accordingly done in the pantheon at Rome. There are extant several prints of the Virgin, and some other subjects etched by him. He is said to have been an open-hearted man; very communicative to his scholars; and so extremely kind to them, that he generally kept his money in the same box with his colors, that they might have recourse to either as they had occasion. While Hannibal worked at Rome, Lewis was courted from all parts of Lombardy, especially by the clergy; and we may judge of his capacity and facility, by the great number of his works. In the midst of these employments Hannibal solicited him to come and assist him in the Farnese gallery, so earnestly, that he went to Rome and corrected several things in that gallery; but, after painting a figure or two, he returned to Bologna, where he died in 1619, aged sixty-four.

CAR'ACK, *n.* Span. *carraca;* Old. Fr. *carraque;* Ger. *caracke;* low Lat. *carraca.* But Minsheu derives the word from the Ital. *carico,* a freight or burden. A carack, often spelt carrack and carrick, is a large ship of burden, the same with those that are now called galleons

> Oh, sir, upon her nose, all o'er embellished with rubies, carbuncles, sapphires, declining their rich aspect to the hot breath of Spain; who sent whole armadoes of *carracks* to be ballasted at her nose. *Shakspeare*

> In which river, the greatest *carack* of Portugal may ride afloat ten miles within the forts. *Raleigh.*

> The bigger whale like some huge *carack* lay,
> Which wanteth sea room with her foes to play.
> *Waller.*

CA'RACOL, *v.* & *n.* } Sp. *caracolear*, from
Ca'racole. } *caracol*, a snail; with reference to the spiral turns in the snail's shell. But the Spanish itself is derived from Heb. *carac*, through Ar. *garagal*. In horsemanship, an oblique tread, traced out in semi-rounds, changing from one hand to the other, without observing a regular ground. The half turn, which, after his discharge, a horseman makes to pass from the front of the squadron to the rear is called caracole. The caracole is also made by a whole troop of cavalry, for the purpose indicated in the following quotation.

> When the horse advance to charge in battle, they ride sometimes in *caracoles*, to amuse the enemy, and put them in doubt whether they are about to charge them in the front or on the flank.
> *Farrier's Dictionary.*

CAR'ACT, *n.* } Κεράτιον. Lat. *ceratium*;
Car'at, *n.* } Arab. *keerat*, Per. *charat*; Fr. *carat*; Ital. *caratto*. Kennet derives it from *carracta*, which anciently signified any weight. Besides the two spellings already given, this word is spelt in a variety of ways; carract, karract, carrat, and karrat. It denotes a four-grain weight, for weighing diamonds, the grains of which are somewhat lighter than common grains; an imaginary weight by which the degree of purity in gold is indicated; and, figuratively, the value of anything.

> A mark, being an ounce troy, is divided into twenty-four equal parts, called *caracts*, and each *caract* into four grains: by this weight is distinguished the different fineness of their gold; for, if to the finest gold be put two *caracts* of alloy, both making, when cold, but an ounce, or twenty-four *caracts*, then this gold is said to be twenty-two *caracts* fine. *Cocker.*

> Thou best of gold, art worst of gold;
> Other, less fine in *caract*, is more precious.
> *Shakspeare.*

> They are men that set the *caract* and value upon things as they love them; but science is not every man's mistress. *Ben Jonson.*

CARACTACUS, a renowned king of the ancient British people, called Silures, inhabiting South Wales. Having valiantly defended his country seven years against the Romans he was at last defeated; and flying to Cartismandua, queen of the Brigantes, was by her treacherously delivered up to the Romans and led in triumph to the emperor Claudius, then at York; where his noble behaviour, and heroic but pathetic speech, obtained him not only his liberty, but the esteem of the emperor, A.D. 52. Buchanan, Monipenny, and the other ancient Scots historians, make this heroic prince one of the Scots monarchs; nephew and successor to king Metellanus: and say that he was elected general of the united army of Scots, Picts, and Britons.

CARAMANIA, an interior province of Asiatic Turkey, east of Natolia, comprising about 35,000 square miles of surface; it is excluded from the Mediterranean by Itchül, a very rugged and mountainous district, but which is commonly considered as forming part of the province of Caramania; but be that as it may, the Alpine character of the part bordering on the Mediterranean, precludes it from deriving much advantage from the water communication on that side. It is intersected by the Kisil Jermak, which, after a course of about 350 miles, flows north into the Black Sea, it has a salt water lake of considerable extent in the north-west part of the province; and in the south-west are several lakes of fresh water, which yield abundance of fish; the equilibrium of the waters of all these lakes seems to be maintained by evaporation, no visible outlet appearing; the forests in the mountainous parts of the province yield abundance of the finest timber, both oak and pine, and the vine and fig-tree, with innumerable varieties of flowering and odoriferous shrubs, luxuriate in every part. Caramania comprehends the ancient Pamphylia, and a great part of Cilicia, Pisidia and Cappadocia II. Bajazet united it to the Ottoman Empire in 1488, and thus a country once teeming with population, and studded with numerous fine cities and towns, is again a desert inhabited by tribes of Turcomans, partaking more of a negro mode than a settled life. They, however, carry on some external traffic, in camels' hair, goats' wool, and opium. Of the number of its inhabitants there is no account worthy of attention; but they probably do not exceed from 150 to 200,000. Cogni or Konich, in the lat. of 38° 10′ N. and 32° 25′ of E. long., 308 miles east of Smyrna, and 150 north of the shore of the Mediterranean is the capital; the other principal towns are Erekli, Akserai, and Ker-shehr on the banks of the Kisil Jermak; and Kaisarich, towards the eastern extremity of the province. Konich and Erekli are on the route of the caravans from Constantinople to Aleppo.

CARAPACE, the thick, solid shell, which covers the turtle; and to which adhere those fine transparent shells, called tortoise shells, of which snuff-boxes, &c. are made.

CARAPOPEBA, in zoology, a small species of lizard, common in the Brasils, and esteemed poisonous. Its body is of a liver color, and has several white spots. There are marks of white on the tail, variegated with yellow. Its eyes are bright and vivid.

CAR'AVAN, *n.* } Ar. and Per. *kerwan*;
Caravansary, *n.* } Turk. *kervan*: Fr. *caravanne*: Ital. *caravana*. Its primary meaning is a troop of persons assembled to journey together, either for commercial purposes, or in pilgrimage. Secondarily, it denotes a large covered conveyance for goods; the name of which is sometimes abbreviated into van. A caravansary, Per. *kerwansura*, is a house built in the eastern countries, chiefly in dry, barren, desert places, for the reception of travellers. It differs however, from an inn, by affording only shelter except in some few cases.

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They set forth
Their airy *caravan*, high over seas
Flying, and over lands, with mutual wing
Easing their flight. *Paradise Lost.*

Sir, what ill chance hath brought thee to this place,
So far from path or road of men, who pass
In troop or *caravan*? *Paradise Regained.*

When Joseph, and the blessed virgin mother, had lost their most holy son, they sought him in the retinues of their kindred, and the *caravans* of the Galilean pilgrims. *Bishop Taylor.*

The inns which receive the *caravans* in Persia, and the eastern countries, are called by the name of *caravanseries*. *Spectator.*

The spacious mansion, like a Turkish *caravansary*, entertains the vagabond with only bare lodging. *Pope's Letters.*

There, deadly Sumiel striding o'er the land,
Sweeps his red wing, and whirls the burning sand;
As winds the weary *caravan* along,
The fiery storm involves the hapless throng. *Scott.*

League after league, through many a lingering day,
Steer the swart *caravans* their sultry way;
O'er sandy wastes, on gasping camels toil,
Or print with pilgrim steps the burning soil. *Darwin.*

Caravan, or Karavan, in Africa and the east, derived from the Persian word which signifies a merchant, is a company of travellers and pilgrims, more particularly of merchants, who, for their greater security, and to assist each other, march in a body through the deserts, and other dangerous places, which are infested with Arab and native robbers. There are four regular caravans which go yearly to Mecca; the first from Damascus, composed of pilgrims and merchants from Europe and Asia; the second from Cairo, for the Mahommedans of Barbary; the third from Zibith, near the mouth of the Red Sea, where those of Arabia and India meet; the fourth from Babylon, where the Persians assemble. Most of the inland commerce of the east is carried on by caravans. Peter the Great established a trade between Russia and China by means of a caravan. Bougnon, geographer to the duke of Lorraine, published a treatise of the caravans of merchants in Asia. There are commonly four chief officers of a caravan, viz. the caravan bachi, or chief; the captain-guide; captain of the rest; and captain of distribution. The first has absolute command over all the rest: the second is absolute in the march: the office of the third only commences when the caravan stops and makes a stay: to the fourth it belongs to dispose of every part of the corps, in case of an attack or battle; he has also the inspection over the distribution of provisions, which is made under him by several distributors, who give security to the master of the caravan, and have each of them a certain number of persons, elephants, dromedaries, &c. to take care of at their own peril. The treasurer of the caravan makes a fifth officer, who has under him several agents and interpreters, who keep journals of all that passes, for the satisfaction of all concerned. Any dealer is at liberty to form a caravan. He in whose name it is raised, is considered as the chief of the caravan, unless he appoint some other in his place. If there are several merchants equally concerned, they elect a caravan bachi; after which, they appoint officers to conduct the caravan and decide all controversies. There have been also sea caravans, established on the same footing, and for the same purposes.

CARAVA'NCE, } Span. *garbanzo*, a species
Caraba'nce, *n.* } of kidney-bean, with pods like the carob.

Caravansary, or Caravansera, in architecture, a large house or public building, erected for the reception of travellers. These buildings are seldom more than one story high, and are usually of a quadrangular form, with porticos in the interior for the horses and camels; chambers for the merchants and travellers, and warehouses for the merchandise.

CAR'AVEL, or } Fr. *caravelle*; Basque,
Car'vel, *n.* } *carabella*; Span. *caravella*; Ital. *caravela*; Ger. *karfe*; Lat. *carabas*. Carvel is the spelling most in use, but the word is sometimes spelt carveil. A swift bark; a light, round, old-fashioned ship, of 120 or 140 tons burden, with a square poop, rigged and fitted out like a galley, formerly used in Spain and Portugal. It is also, as appears from Sir T. Herbert's Travels, an old name of the urtica marina, or sea blubber.

I gave them orders if they found any Indians there, to send in the little fly boat, or the *carvel*, into the river; for, with our great ships, we durst not approach the coast. *Raleigh.*

She may spare me her misen and her bonnets, strike her main petticoat, and yet outsail me. I am a *carvel* to her. *Beaumont and Fletcher.*

In an obstinate engagement with some Venetian *caravels*, the vessel on board which he served took fire. *Robertson.*

The *carvel* is a sea fome, floating on the ocean, of a globous form. *Sir T. Herbert.*

Caravel, a small vessel on the coast of France, used in fishing herrings on the banks They are commonly from twenty-five to thirty tons burden.

CAR'AWAY, *n.* Fr. *carvi*; Ital. *alcaravea*; Span. *alcarahueya*; Lat. *carum*. A plant producing warm aromatic seeds, which are used in medicine and confectionary. See Carum.

CAR'BON, *n.* } Fr. *carbone*; Lat. *car-*
Carbona'ceous, *adj.* } *bo*. Carbon is one of
Carbon'ic. } the simple bodies of chemistry; carbonaceous is that which contains carbon; carbonic that which relates to carbon.

Carbon. Charcoal is a word often employed synonymously with carbon: but, although charcoal is the form under which carbon most commonly occurs, yet it is in this form mixed with several extraneous ingredients. The diamond was concluded, by Guyton Morveau, to be the only form of pure carbon; but the experiments of Allen and Pepys have tended to show that these hard substances, although so widely different in external character and appearance, are chemically the same; the difference between them seeming to result from the different state of aggregation of their particles. It further seems that the diamond is absolutely free from both water and hydrogen; and it is in this particular, as well as in the mode by which its particles are aggregated, that the difference seems to obtain between charcoal and the diamond. Diamond converts iron into steel; which power is likewise characteristic of charcoal. See DIAMOND.

Charcoal appears to be the same substance from whatever wood it is procured, but it is usually made upon a large scale from oak, chestnut, elm, beech, or ash-wood. Lamp black may be regarded as a very pure carbon, after it has been heated red hot in a very close vessel. This is prepared by causing the dense smoke, arising from refuse resin burnt in a furnace, to be collected.

Although charcoal, as we have said, is the same in principle from whatever source it may have been obtained, some woods give much more of it than others. From 100 parts of the following woods, Messrs. Allen and Pepys obtained the quantities of charcoal as stated in the annexed table:—

Beech . .	15·00	Oak . .	17·40
Mahogany .	15·75	Fir . .	18·17
Lignum Vitæ	17·25	Box . .	20·25

Charcoal conducts electricity, although the wood from which it has been procured, if simply deprived of its moisture by evaporating it, is a non-conductor. It, however, conducts caloric very slowly. It is insoluble in water, and hence charring wood preserves it from the effects of moisture in some measure; but it has an attraction for a given portion of water, which it retains with force, and when heated nearly red hot it has the power of decomposing the fluid, forming with its oxygen either carbonic oxide or carbonic acid, according to the quantity employed; it also combines with the hydrogen of the water and forms carburetted hydrogen.

Charcoal possessing a powerful affinity for oxygen, becomes useful in deoxygenating metallic oxides, and thus reviving the metal. It combines also with sulphur and hydrogen. With iron, as above intimated, it forms steel.

It has an antiseptic power, and hence its utility in correcting the smell of foul ulcers; 'on this account,' says Dr. Ure, 'it is the best dentifrice.' It enters into the composition of gunpowder; and in its finer states, as in ivory black, lamp black, &c. it constitutes the basis of black paints, of printers' ink, and of Indian ink.

Carbon, in its union with different bases, forms important compounds, which will be elsewhere noticed. See CHEMISTRY.

CARBONA'DE, *n.* } Fr. *carbonade*; from
CARBONA'DO, *v.* & *n.* } Lat. *carbo*, a coal. Meat cut across, to be broiled on the coals. Cotgrave and Sherwood define it to mean also a 'slash over the face, which fetcheth the flesh with it.' By an extension of this meaning, the verb signifies to cut and hack any part of the body; but, thus applied, it is used only in a ludicrous or contemptuous sense.

> If I come in his way willingly, let him make a *carbonado* of me. *Shakspeare.*

CARBONARI, a sect of Italian and German freemasons.

CARBONARIA, in ancient geography, one of the mouths of the Eridanus in Italy, mentioned by Pliny: now Il Porto-di-Goro

CARBONATES are neutral salts, composed of the carbonic acid, and certain bases. See CHEMISTRY.

CARBONIC ACID. In the article AIR, and in the history of chemical science, it will be seen what an important part the discovery of this acid performed, in aiding the progress, and altering the complexion, of chemical science.

This acid is produced abundantly by various processes of nature; the best method of obtaining it artificially for the purposes of experiments, is that of pouring dilute muriatic acid upon marble, which is a carbonate of lime; in this way the carbonic acid is set at liberty, and it may be collected over water.

Most of the carbonates will, indeed, give out their carbonic acid by being treated with heat, even without the assistance of another acid, since the affinity by which it is retained, with its several bases, is for the most part feeble. Chalk, for instance, or unslaked lime, soon becomes quicklime by the application of heat, which causes the separation of the carbonic acid from the material, and thus leaves it in a caustic, or pure, or quick condition.

Carbonic acid may be analysed by the action of the metal potassium, which is capable of abstracting its oxygen (it is a compound of oxygen and carbon), and with the aid of heat burns it with great splendor; charcoal is deposited, and an oxide of potassium is formed. In this, and in some other cases, oxygen is seen alternately producing acid and alkali. If carbonic acid, obtained by burning the diamond in oxygen, be thus decomposed by potassium, the carbon makes its appearance in the form of charcoal, equal in weight to the diamond consumed.

There are some other substances which at high temperatures are capable of decomposing carbonic acid, and abstracting part of its oxygen; thus, if a mixture of two parts of hydrogen and one of carbonic acid, by volume, be passed through a red hot tube with a proper apparatus, water is formed, and carbonic oxide passes into the receiver, mixed with the excess of hydrogen.

If carbonic acid be passed over red hot charcoal, it becomes converted into carbonic oxide by taking up an additional portion of base. The blue flame, often seen upon the surface of a charcoal fire, arises from the combustion of the carbonic oxide formed in this way; the air entering at the bottom forms carbonic acid, which, passing through the red hot charcoal, becomes converted into carbonic oxide.

At a bright red heat, iron decomposes carbonic acid, by abstracting a portion of its oxygen, and forming oxide of iron and carbonic oxide (Brande).

For the various combinations of carbonic acid with bases, see CHEMISTRY, and the respective articles.

CAR'BUNCLE, *n.* } Fr. *carbuncle*; Ita.
CAR'BUNCLED, *adj.* } *carbonchio*; Span.
CARBU'NCULAR, *adj.* } *carbunculo*; Lat. *car-*
CARBUNCULA'TION, *n.* } *bunculus*. A gem, once believed to shine in the dark, like a glowing coal, whence its name, from the diminutive of carbo: red spots or pimples on the face and body, very commonly one of the [illegible] brands

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and punishments of a drunkard. Carbuncular signifies belonging to a carbuncle; or red, like that gem. Carbunculation is applied to the blasting of young plants, whether effected by excessive heat or by an opposite cause, when 'the parching air burns frore, and cold perform the effect of fire.'

> A *carbuncle* entire, as big as thou art,
> Were not so rich a jewel. *Shakspeare.*

> An armour all of gold; it was a king's—
> He has deserved it, were it *carbuncled*
> Like holy Phœbus' car. *Id.*

> His head
> Crested aloft, and *carbuncle* his eyes,
> With burnished neck of verdant gold.
> *Paradise Lost.*

It was a pestilent fever, but there followed no *carbuncle*, no purple or livid spots, or the like, the mass of the blood not being tainted. *Bacon.*

It is believed that a *carbuncle* doth shine in the dark like a burning cole, from whence it hath its name, *Wilkins.*

> Red blisters rising on their paps appear,
> And flaming *carbuncles* and noisome sweat.
> *Dryden.*

Carbuncle is a stone of the ruby kind, of a rich blood-red colour *Woodward.*

CARBUNCLE, in heraldry, a charge or bearing, consisting of eight radii, four whereof make a common cross, and the other four a saltier. Some call these radii, battons or staves, because round, and enriched with buttons, or pearled like pilgrim's staves.

CARBUNCLE, in medicine. See ANTHRAX.

CARBUNCLE, in natural history, a very elegant gem, whose color is deep red, with an admixture of scarlet. This gem was known among the ancients by the name of anthrax. It is usually found pure, and of the same degree of hardness with the sapphire. It is naturally of an angular figure; and is found adhering, by its base, to a heavy and ferruginous stone of the emery kind: its usual size is nearly a quarter of an inch in length, and two-thirds of that in diameter in its thickest parts: when held up against the sun it loses its deep tinge, and becomes exactly of the color of a burning charcoal, whence the name. It bears the fire unaltered. It is found only in the East Indies, and there but very rarely.

CARBURET or SULPHUR, &c. See CHEMISTRY, and HYDROGEN.

CARBURETTED HYDROGEN GAS. See CHEMISTRY.

CA'RCANET, or } Fr. *carcan*; Belg. *kar-*
CA'RKNET, *n.* } *kant*; Swed. *quark*; Mid. Lat. *carcarum*. Menage, with less force than he sometimes employs, refers its derivation to the Gr. κιρκινος, a species of chain. It is a neck-chain; a necklace. As its immediate parent is the Fr. *carcan*, it can only be applied to that which goes round the neck.

> Say that I lingered with you at your shop,
> To see the making of her *carcanet*. *Shakspeare.*

I have seen her beset and bedect all over with emeralds and pearls, and a *carcanet* about her neck. *Hakewell.*

CA'RCASS, *n.* } Fr. *carquasse*, *car-*
CA'RCASS-LIKE, *adj.* } *casse*; Mid. Lat. *carcasium*. By some etymologists, a violent attempt has been made to derive the word from *carquois*, a quiver; than which nothing, it seems, can well be more 'false and forced.' Minsheu finds its origin in *carocasso*, flesh decayed, or deprived of life. Its meanings are, a dead body; ludicrously, a living body; the decayed parts, the ruins, the remains, of anything; the uncompleted, unornamented parts of anything, as of a house; lastly, an oblong iron shell, filled with combustibles, to be thrown from a mortar.

> But when this *carcass* here to earth shall be refard,
> I do bequeath my weried ghost to serve her afterward.
> *Surrey.*

> To blot the honour of the dead,
> And with foul cowardise his *carcass* shame,
> Whose living hands immortalized his name.
> *Spenser.*

> Here's a stay,
> That shakes the rotten *carcass* of old death
> Out of his rags! Here's a large mouth, indeed,
> That spits forth death, and mountains, rocks, and
> seas! *Id.*

> To-day how many would have given their honours
> To've saved their *carcasses*! *Id.*

> A rotten *carcass* of a boat, not rigged,
> Nor tackle, sail, nor mast. *Id.*

> Where cattle pastured late, now scattered lies,
> With *carcasses* and arms, the insanguined field.
> *Milton.*

If a man visits his sick friend in hope of a legacy, he is a vulture, and only waits for the *carcass*. *Tayler.*

What could be thought a sufficient motive to have had an eternal *carcass* of an universe, wherein the materials and positions of it were eternally laid together. *Hale's Origin of Mankind.*

> The scaly nations of the sea profound,
> Like shipwrecked *carcasses* are driven aground.
> *Dryden.*

He that finds himself in any distress, either of *carcass* or of fortune, should deliberate upon the matter before he prays for a change. *L'Estrange.*

> Methinks I scent some some rich repast,
> The savor strengthens with the blast,
> Snuff then, the promised feast inhale,
> I taste the *carcass* in the gale. *Gay.*

> This penknife keen my windpipe shall divide,
> What shall I fall as squeaking pigs have dyed,
> No—To some tree this *carcass* I'll suspend,
> But worrying curs find such untimely end. *Id.*

CARCASS, a kind of combustible, consisting of an iron case filled with composition, and so called because the circles that pass from one plate to another seem to represent the ribs of a skeleton or carcass. Carcasses were formerly made oblong as well as round, but these have been found so uncertain in their flight that they are now entirely rejected. The composition with which they are filled is thus made:—boil 15 lbs. of pitch in a glazed earthen pot, and mix with it 3 lbs. of tallow, 30 lbs. of powder, 6 lbs. of saltpetre, and as many slopins as can be put in: the case is then filled with this; loaded pistol barrels, and grenades, are put in with it, and it is wrapped in a cloth and well pitched; lastly, three or four holes are bored in it, and filled with fuse composition: from these the long flame issues, and will set anything on fire within six feet of its range. Carcasses are thrown out of mortars, and weigh from fifty to 230 lbs according-ing to the size of the mortars out of which they are to be thrown. There are other carcasses for the sea-service, which so nearly resemble these, that any further description will be needless.

CARCASSONE, an ancient city and bishop's see of France, the capital of the present department of the Aude, a river which divides it into the upper and lower town. The former, which is by far the more ancient, and contains the cathedral, bears exclusively the name of the city: the lower town is of modern erection, and on the whole better built. Together they now contain about 15,000 inhabitants, who manufacture cloth for the Levant, and conduct a considerable export trade by means of the canal of Languedoc, which runs within a mile of this place. When, in the thirteenth century, Innocent III. had proscribed the Albigenses for heresy, Raymond, the reigning viscount of Carcassone, was included in that proscription. Simon de Montfort, general of the army of the church, invested Carcassone in 1209. The inhabitants, terrified at the fate of other places where the most dreadful massacres had been committed, demanded leave to capitulate; but this act of mercy was only extended to them under a condition equally cruel, unparalleled, and, indeed, incredible, if we had not the unanimous testimony of all the contemporary writers. The people were all obliged, without exception of rank or sex, to evacuate it in a state of nudity; and Agnes, the viscountess, was not exempted, though young and beautiful, from this ignominious and shocking disgrace. Carcassone is thirty-six miles west of Narbonne, and fifty south-east of Toulouse.

CAR'CELAGE, Lat. *carcer*. Prison fees.

CAR'CERAL, Lat. *carcer*. Belonging to a prison.

CARCERES, in the ancient Circensian games, were enclosures in the circus, wherein the horses were restrained till the signal was given for starting, when they at once flew open.

CARCINO'MA, *n.*
CARCINOM'ATOUS, *adj.* } From καρκινος, a crab. A cancer; a disease in the horny coat of the eye; cancerous; having a tendency to cancer.

CARCINOMA. See CANCER.

CARD, *v.* & *n.*
CARD-TABLE, *n.*
CAR'DER, *n.*
CAR'DING, *n.*
CARD-DEVOTED, *adj.*
CARD-MAKER, *n.*
CARD-MATCH, *n.*
CARD-TABLE, *n.*

Fr. *carte*; Ital. *carta*; Lat. *charta*; χάρτης. The most extensive meaning of the word card is a stiff kind of paper painted with figures, a certain number of pieces of which is called a pack, and is used in games of chance or skill. By means of this pack, health, temper, fortune, and often honor, are made a sacrifice by the card-devoted throng. A more honorable appropriation of the word is to the paper placed under the mariner's needle, and marked with the various winds; and to the instrument with which wool is carded. These cards contribute to remedy the evils which are inflicted by the other species. Card is also a short note, written in the third person, and on card paper. To card, as derived from the noun, is to play much at cards; but the verb is disused in this sense. In its usual acceptation it means to comb wool with a piece of wood, thick set with crooked wires It then has its origin from Fr. *carder*; Lat. *carduus*, teazle; the teazle having been originally employed for this purpose. In old writers we find it, too, with the opposite meanings of blending together and disentangling.

A thousand wayes he them could entertaine,
With all the thriftles games that may be found;
With mumming and with masking all around,
With dice, with *cards*, with biliards farre unfit,
With shuttlecocks, misseeming manlie wit.
Spenser. Mother Hubberd's Tale

As pilot well expert in perilous wave,
That to a steadfast star his course hath bent,
When foggy mistes or cloudy tempest have
The faithful light of that faire lampe yblent,
And cover'd heaven with hideous drerimient
Upon his *card* and compass firmes his eye,
(The masters of his long experiment)
And to them does the steddy helme apply,
Bidding his winged vessell fairely forward fly.
Spenser

The lilly, lady of the flowery field,
The flower-de-luce her lovely paramoure,
Bid thee to them thy fruitlesse labors yield,
And soone leave off this toylsome weary stoure:
Loe! loe! how brave she decks her bounteous boure,
With silken curtens and gold coverletts,
Therein to shrowd her sumptuous belamoure'
Yet neither spinnes nor *cards*, ne cares nor fretts,
But to her mother Nature all her care she letts. *Id.*

A vengeance on your crafty withered hide'
Yet I have faced it with a *card* of ten.
Shakspeare.

Am not I Christophero Sly, by occupation a *card maker*. *Id.*

The very quarters that they blow,
All the quarters that they know,
I' th' shipman's *card*. *Id.*

How absolute the knave is! we must speak by the *card*, or equivocation will undo us. *Id.*

The clothiers all have put off,
The spinsters, *carders*, fullers, weavers. *Id.*
The while their wives do sit
Beside them, *carding* wool. *May's Virgil.*

It is an excellent drink for a consumption, to be drank either alone, or *carded* with some other beer.
Bacon.

It is necessary that this book be *carded* and purged of certain base things.
Shelton. Translation of Don Quixote.

Many too nicely take exceptions at *cardes*, tables, and dice, and such mixt lusorious lots (whom Gataker well confutes), which though they be honest in themselves, yet may justly be otherwise excepted at, as they are often abused, and forbidden as things most pernicious. *Burton. Anat. Mel*

Go *card* and spin,
And leave the business of the war to men.
Dryden

Well he the title of St. Alban's bore,
For never Bacon studyed nature more;
But age allaying now that youthful heat,
Fits him in France to play at *cards* and cheat.
Marvell.

Soon she spreads her hand, the aerial guard
Descend, and sit on each important *card*;
First, Ariel perched upon a matadore. *Pope.*
See how the world its veterans rewards.
A youth of frolics, an old age of *cards*. *Id.*
On life's vast ocean diversely we sail,
Reason the *card*, but passion is the gale. *Id.*

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Take care, that those may not make the most noise who have the least to sell, which is very observable in the venders of *card matches*. *Addison.*

Whether there be not every year more cash circulated at the *card-tables* of Dublin, that at all the fairs of Ireland? *Berkley.*

Sure *cards* he has for every thing,
Which well court-*cards* they name,
And statesmanlike calls in the king,
To help out a bad game. *Gay*

The *cards* are dealt, the bett is made
And the wide park hath lost its shade. *Id*

The pilot's fair machinery strews the deck,
And *cards* and needles swim in floating wreck.
Falconer.

Cards were superfluous here, with all the tricks
That idleness has ever yet contrived
To fill the void of an unfurnished brain,
To palliate dulness, and give time a shove.
Cowper.

As he that travels far, oft turns aside
To view some rugged rock or mouldering tower,
Which seen delights him not:—
So I with brush in hand and palette spread,
Paint *cards*, and dolls, and every idle thing,
That fancy finds in her excursive flights. *Id.*

Cards, Playing. Playing cards were invented in France, about the end of the reign of Charles the Fifth. No mention is made of them previous to that found in the Chronicle, written by Petit Jehan de Saintre, at the time he was page to that prince. The ordinances of St. Louis, of Charles IV., and of Charles V. at the beginning of his reign, in mentioning the different games in vogue, only speak of dice and back-gammon, without naming cards. Under Charles VI., a painter, named Jacquemin Gringonneau, who resided at Paris, in the Rue de la Verrerie, manufactured cards. In an account-book of Charles Poupart, superintendent of finance, and banker to Charles VI. there is an entry of fifty-six Paris sous paid to Jacquemin Gringonneur, the painter, for three packs of cards, gilded and colored, and of various devices, to be presented to our lord the king, for his diversion, during the intervals of his unfortunate malady. Probably it is in this circumstance that the generally received tradition, which rigid moralists have turned to so much account, of cards having been first invented for the amusement of an idiot, originated. After what has been stated above, it is unnecessary to observe that this tradition is unfounded. Like many other popular errors, however, it has been productive of so much instruction that its existence can hardly be a subject of regret.

All the early games of cards are of French invention, and most of these retain, in all countries where they are played, the whole or greater part of the terms in the original language. The names by which the playing cards are at present known in France were given to them in the reign of Charles VII.; and the game of picquet, the oldest of any known, was invented at the same period.

The mode of manufacturing playing cards is simple and may be easily explained: indeed it nearly resembles the early mode of book printing, being performed by means of blocks or engraved moulds, and a sheet of wet or moist card is laid on the form or block, which is first lightly brushed over with an ink, made of lamp black mixed with starch and water; and then rubbed off with a round list, in the hand. The court-cards they color by help of several patterns called 'stanefiles,' consisting of papers cut through with a penknife: within the apertures or incisions of which the several colors, as red, &c. are severally applied, for at the first printing the card has only a mere outline. These patterns are painted with oil-colors, to keep them from wearing out by the brushes: being laid on the paste-board they slide a brush full of color loose over the pattern, which leaving the color within the apertures, forms the face or figure of the card.

In the manufacture of cards the ingenuity of the artisan is sometimes employed to aid the arts of the sharper and professional gambler. Thus we find that there are marked and brief cards: the first of these are so called when the aces, kings, queens, and knaves, are marked on the corners of the backs with spots of different number and order, either with clear water, or water tinged with pale Indian ink, that those in the secret may distinguish them. Aces are marked with single spots on two corners opposite, diagonally; kings with two spots at the same corners; knaves with the same number transversed, &c. Brief cards are those which are either longer or broader than the rest, chiefly used at whist and picquet. The broad cards are usually for kings, queens, knaves, and aces; the long for the rest. Their design is to direct the cutting, to enable him in the secret to cut the cards disadvantageously to his adversary, and draw the person unacquainted with the fraud to cut them favorably for the sharper. As the pack is placed either endways or sideways to him that is to cut, the long or broad cards naturally lead him to cut to them.

CARDAMINE, in botany, lady's smock, a genus of the siliquosa order, and the tetradynamia class of plants, natural order thirty-ninth, siliquosa. The siliqua parts asunder with a spring, and the valves roll spirally backward; the stigma is entire, and the calyx a little gaping. Of this there are twenty-two known species; but the most remarkable is the C. pratensis, with a large purplish flower. It grows naturally in many parts of Britain, and is also called cuckow-flower. The single sorts are not admitted into gardens, but the double deserve a place, as making a pretty appearance during the time they are in flower. The flower of this species has a place in the Materia Medica, upon the authority of Sir George Baker, who has published five cases, two of chorea sancti viti, one of spasmodic asthma, an hemiplegia, and a case of spasmodic affections of the lower limbs, wherein the flores cardamines were supposed to have been successfully used.

CARDAMOMUM. See Amomum

CARDAN (Jerome), one of the most extraordinary geniuses of his age, was born at Pavia, 24th Sept. 1501. He was born with his head covered with black curled hair. When four years old he was carried to Milan, where his father was an advocate. At twenty he entered the university, and two years afterwards lectured on Euclid. In 1523 he went to Padua, and was admitted M. A.; and, in 1525, M. D. He married about 1531. At the age of thirty-two he became professor of mathematics at Milan. In 1539 he was admitted of the college of physicians at Milan; and in 1543 read public lectures on medicine in that city, and at Pavia in 1544; but discontinued them, because he could not get payment of his salary, and returned to Milan. In 1552 he went into Scotland, having been sent for by the archbishop of St. Andrews, then forty years old, and who had for ten years been afflicted with a shortness of breath. He began to recover from the moment that Cardan prescribed for him. Cardan, in his journey to Scotland, crossed France, and returned through Germany and the Netherlands, along the Rhine. On this occasion he went to London, and calculated king Edward's nativity. Returning to Milan, he continued there till October 1552, and thence proceeded to Pavia, whence he was invited to Bologna in 1562. He taught in this city till 1570, but left it in 1571, and went to Rome, where he lived for some time without public employment. He was, however, admitted a member of the college of physicians, and received a pension from the pope. He died at Rome, according to Thuanus, 21st September, 1575. Cardan asserted that he was always attended by an aerial spirit, emanated partly from Saturn, and partly from Mercury, who was the constant guide of his actions. He was exceedingly vain of his acquirements, and odd in his temper. Scaliger says, that, having fixed the time of his death, he abstained from food that his prediction might be fulfilled, and that his continuance to live might not discredit his art. The Lyons edition of his works, published in 1663, consist of 10 vols. fol.

CARDI'ACAL, *adj.* } Old Fr. *cardiaque*;
Car'diack, *adj.* } from καρδια, the heart.
Cordial; having the quality of invigorating the spirits. It was used by some of our old writers to express a sensation of pain in or about the heart.

> The stomachick, *cardiack*, and diuretic qualities of this fountain somewhat resemble those of tar water.
> *Bishop Berkeley.*

Cardiacs, in medicine. See Cordials.

CARDIACUS Plexus in anatomy, is formed by the nerves which supply the heart, and which are derived from the superior and inferior cervical, and first dorsal ganglia of the great sympathetic nerve, from the par vagum and the recurrent nerve.

CAR'DIALGY, *n.* from καρδια, the heart, and ἄλγος, pain. The heart-burn; a pain supposed to be felt in the heart, but more properly in the stomach, which sometimes rises all along from thence up to the æsophagus, occasioned by some acrimonious matter. *Quincy.*

CARDIALGIA. See Medicine.

CARDIFF, a borough and sea-port of South Wales, capital of Glamorganshire. It is seated on the east bank of the River Taafe or Tay, near its entrance into the mouth of the Severn. It was first founded in 1080. In 1100 Robert Fitshammon, a Norman, built and strongly fortified a castle, and surrounded it by a wall, but it was taken soon after by the native Britons In the tower of the castle, Robert, Duke of Normandy, brother of William Rufus and Henry I. was kept a close prisoner twenty-six years, and was afterwards interred in Gloucester cathedral. The castle was again taken by a Norman force, assisted by the earl of Pembroke, in 1232. It early surrendered to the parliamentary forces in the contest which placed the sovereignty of the kingdom in the hands of Cromwell; it was constituted a royal garrison at the restoration of Charles II.; it is now fast mouldering to decay, part of its stone walls having been appropriated to build dwellings in the town. Cardiff had formerly two religious houses of black and of white friars, and two churches, one of which was destroyed by an inundation in 1607, together with many other buildings; the remaining church has a high tower, of light and elegant architecture. The town is compact and well built; the town-hall is a respectable modern edifice, contiguous to it is the county gaol, and there is an elegant bridge of five arches over the Taaf. Four miles north of the town, at Melyn Griffin, is an extensive manufacture of tin-plates, and twenty-one miles further north is Merthyr Tydvil, where there are the most extensive iron works in the world, the produce of which is conveyed by a canal, having a fall of 568 feet, into the tide lock at Cardiff, from whence it is shipped to London, Bristol, and other parts. In addition to the activity which these conveyances occasion, Cardiff also ships a considerable quantity of butter and grain to Bristol. Its markets on Wednesdays and Saturdays are numerously attended, as are also three fairs on the second Wednesday in March, April, and May, and again in June, September, and November. The advantages which it derives from this traffic have occasioned a considerable increase of population since the commencement of the present century; the number in 1801 having been only 1870, and in 1821, 3521. The assizes for the county of Glamorgan are held here, and, in conjunction with seven other towns, it returns one member to parliament. Cardiff is forty miles west of Bristol, forty-seven east of Swansea, and 160 west of London. Long. 3° 12' W., lat. 51° 28' N.

CARDIGAN, a maritime county of South Wales, extending for about fifty miles along the shore of St. George's Channel, from the river Tievy, which divides it from Pembroke and Caermarthenshires on the south, to the Dovey, which divides it from Merionethshire, north; being about thirty miles in mean breadth, bounded on the east by the counties of Montgomery, Radnor, and Brecknock. The Rheidol and one or two other rivers intersect the county from east to west. Parts of this county are very fertile, both in tillage and pasture, which enables the inhabitants to produce a considerable surplus of grain, and small black cattle, with which, and some few sheep and wool, they obtain a tolerable supply of manufactured and colonial productions. Poultry and wild fowl are also abundant, was first founded in 1080. In 1100 Rober Fitshammon, a Norman, built and strongly fortified a castle, and surrounded it by a wall, but it was taken soon after by the native Britons. In the tower of the castle, Robert, Duke of Normandy, brother of William Rufus and Henry I. was kept a close prisoner twenty-six years, and was afterwards interred in Gloucester cathedral. The castle was again taken by a Norman force, assisted by the earl of Pembroke, in 1232. It early surrendered to the parliamentary forces in the contest which placed the sovereignty of the kingdom in the hands of Cromwell; it was constituted a royal garrison at the restoration of Charles II.; it is now fast mouldering to decay, part of its stone walls having been appropriated to build dwellings in the town. Cardiff had formerly two religious houses of black and of white friars, and two churches, one of which was destroyed by an inundation in 1607, together with many other buildings; the remaining church has a high tower, of light and elegant architecture. The town is compact and well built; the town-hall is a respectable modern edifice, contiguous to it is the county gaol, and there is an elegant bridge of five arches over the Taaf. Four miles north of the town, at Melyn Griffin, is an extensive manufacture of tin-plates, and twenty-one miles further north is Merthyr Tydvil, where there are the most extensive iron works in the world, the produce of which is conveyed by a canal, having a fall of 568 feet, into the tide lock at Cardiff, from whence it is shipped to London, Bristol, and other parts. In addition to the activity which these conveyances occasion, Cardiff also ships a considerable quantity of butter and grain to Bristol. Its markets on Wednesdays and Saturdays are numerously attended, as are also three fairs on the second Wednesday in March, April, and May, and again in June, September, and November. The advantages which it derives from this traffic have occasioned a considerable increase of population since the commencement of the present century; the number in 1801 having been only 1870, and in 1821, 3521. The assizes for the county of Glamorgan are held here, and, in conjunction with seven other towns, it returns one member to parliament. Cardiff is forty miles west of Bristol, forty-seven east of Swansea, and 160 west of London. Long. 3° 12′ W., lat. 51° 28′ N.

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and the herring fishery has of late years been pursued with considerable success. Its area comprises 675 square miles, divided into sixty-five parishes, which in 1821 contained 11,304 inhabited houses, and 57,784 inhabitants, being an increase of thirty per cent. since 1801. The principal towns besides Cardigan are Aberystwith and Llanbeder.

Cardigan, the chief town of the preceding county, is situate at the mouth of the Tieve, over which is a handsome bridge of seven arches, at the south-west extremity of the county. It had formerly a strong and extensive castle, of which but little now remains. It was from hence that the first descent upon Ireland was made by the English. The church is a spacious edifice; the county gaol and hall have been rebuilt within the present century. It is a corporate town governed by a mayor, twelve aldermen, &c., and unites with Aberystwith and Llanbeder in returning one member to parliament. Holds a market day on Wednesdays and Saturdays. It is twenty-five miles E. N. E. of Saint David's Head, 132 miles west of Gloucester, and about the same distance due east of Waterford, in Ireland. Its commerce by sea is confined to the coast. It owns, however, a considerable amount of shipping, employed chiefly in carrying.

Cardigan Bay is formed by St. David's Head, the western point of Pembrokeshire, south, in the latitude of 51° 44′ N. and 5° 17′ of W. longitude, and Bardsey Island, off the south-west point of Caernarvonshire, north, in the latitude of 52° 44′ and 4° 30′ of W. long.; the main coast of Caernarvonshire being in the longitude of about four degrees; it gives a stretch of about forty miles from west to east, and fifty from south to north, within the bay.

CAR'DINAL, n. & *adj.*
Car'dinalate,
Car'dinalship,
Car'dinalize, v.
} Fr. *cardinal*; Lat. *cardinalis*, principal, chief. A cardinal is one of the governors of the Romish church, by whom the pope is elected out of their own number. See the next article. Ayliffe says that 'a cardinal is so styled, because serviceable to the apostolick see, as an axle or hinge on which the whole government of the church turns; or as they have, from the pope's grant, the hinge and government of the Romish church.' A woman's cloke was at one period called a cardinal, probably from its being made of red or scarlet, the color worn by cardinals. Cardinalate and cardinalship indicate the office and rank of a cardinal. Sheldon, in his Miracles of Antichrist, uses the verb cardinalize, to signify the making cardinals. Principal or chief is expressed by the adjective, as in the instances cardinal virtues, winds, and signs.

Bulles of popes and of *cardinales*,
Of patriarches and bishoppes eke I shewe,
And in Latin I speke a wordes few
To saffron with my predication,
And for to stere men to devotion.
Chaucer. Canterbury Tales.

You hold a fair assembly;
You are a churchman, or I'll tell you *cardinal*,
I should judge now unhappily. *Shakspeare.*

The divisions of the year in frequent use with astronomers, according to the *cardinal* intersections of the zodiack; that is, the two equinoctials, and both the solstitial points. *Browne.*

His *cardinal* perfection was industry. *Clarendon.*

An ingenious cavalier, hearing that an old friend of his was advanced to the *cardinalate*, went to congratulate his eminence on his new honour. *L'Estrange.*

Whether he should divest the *cardinalship*, or rule with a double greatness. *Wotton.*

A peaceful and perpetual succession was ascertained by Alexander the third, who finally abolished the tumultary votes of the clergy and people, and defined the right of election in the sole college of *cardinals*. *Gibbon.*

Cardinals, in their first institution, were only the principal priests of the parishes of Rome; the chief priest of a parish next the bishop, being called presbyter cardinalis, to distinguish him from the other petty priests who had no church. It is uncertain when the term was first applied. Leo IV. in the council of Rome, held in 853, calls them presbyteros sui cardinis; and their churches, parochias cardinales. The cardinals continued on this footing till the eleventh century; it was a considerable time before they had the precedence over bishops, or the election of the pope. It was not, however, only at Rome that priests bore this title; for there were cardinal priests in France: thus, the curate of the parish of St. John de Vignes is called in old charters the cardinal priest of that parish. The title is also given to some bishops, quatenus bishops; e. g. to those of Mentz and Milan: the archbishop of Bourges is also, in ancient writings, called cardinal. The sacred college consists of seventy cardinals, divided into three classes; viz. bishops, priests, and deacons. They compose the pope's council or senate; in the Vatican is a constitution of pope John, which regulates the rights and titles of the cardinals; and which declares, that as the pope represents Moses, so the cardinals represent the seventy elders, who, under the pontifical authority, decide private differences. The cardinal bishops, who are the pope's vicars, bear the titles of the bishoprics assigned to them; the rest take such titles as are given them: the number of cardinal bishops has been fixed; but that of cardinal priests and deacons, and consequently the sacred college itself, has often fluctuated. Till 1125 the college only consisted of fifty-two or fifty-three; the council of Constance reduced them to twenty-four; but Sixtus IV. about 1480, raised them again to fifty-three, and Leo X. to sixty-five. The dress of a cardinal is a red soutane, a rochet, a short purple mantle, and a red hat. The cardinals began to wear the red hat at the council of Lyons, in 1243. The decree of pope Urban VIII., whereby it is appointed that the cardinals be addressed under the title of eminence, is dated 1630; till then they were called illustrissimi. When cardinals are sent to the courts of princes, it is in quality of legates a latere; and, when they are appointed governors of towns, their government is called by the name of legation. The income of a cardinal at present is not equal, we are told, to that of many English benefices. At the period of the first direct attack of France on the papal power, they had rarely more than 4000 piastres, about £900 or £1000 sterling per annum, independently of other benefices. At present their income is not above half that amount. But their expenses are not large, consisting chiefly of an old gilt coach, dirty laquais, and very inferior horses.

Cardinal Points, in cosmography, are the four intersections of the horizon with the meridian, and the prime vertical circle. Of these, two, viz. the intersection of the horizon and meridian, are called north and south, with regard to the poles they are directed to. The other two, viz. the intersections of the horizon, and first vertical, are called east and west. The cardinal points, therefore, coincide with the four cardinal regions of the heavens; and are 90° distant from each other. The intermediate points are called collateral.

CARDING, a preparation of wool, cotton, hair, or flax, by passing it between the iron points, or teeth, of two instruments, called cards, to comb, disentangle, and range the hairs or fibres thereof, and to dispose it for spinning, &c. Before the wool be carded, it is oiled, or greased with oil, whereof one-fourth of the weight of the wool is required, for wool destined for the woof of stuffs; and one-eighth for that of the warp.

CARDIOID, in the higher geometry, an algebraical curve, so called, by Castillioni, from its an heart.

CARDIOSPERMUM, in botany, heart pea, a genus of the trigynia order, and octandria class of plants; natural order thirty-ninth, trihilatæ: cal. tetraphyllous, petals four; the nectarium tetraphyllous and unequal: the caps. three, grown together, and inflated. There are four species, natives of the East and West Indies.

CARDITO, in geography, a town of Naples, in the province of Calabria ultra, eight miles E.S.E. of Reggio.

CARDIUM, the cockle, in zoology, a genus of insects belonging to the order of vermes testaceæ. The animal is a tethys; shell bivalve, nearly equilateral; equivalve, longitudinally ribbed, or grooved, with a toothed margin; hinge with two teeth near the beak, and a larger remote lateral one on each side, each locking into the opposite. Fifty-two species, inhabiting the shores of all parts of the globe. The common cockle, or cardium edule, may serve as a general specimen of the whole. In this the shell is antiquated, with twenty-eight depressed ribs, with obsolete, recurved scales. Found on all the sandy coasts in great abundance, lodged a little beneath the sand; its burrow pointed out by a round depressed spot; shell generally white, with sometimes a bluish or yellowish cast; the ribs a little rough near the circumference. The fish affords a wholesome and nutritive food. Most of the species are edible: but chiefly this and C. rusticum, which is also chiefly found on the European and especially on the Mediterranean coast.

CARDONA, a town of Spain, in Catalonia, with a castle. Near it is a mountain of solid rock salt, of which are made vases, snuff-boxes, and trinkets; and there are vineyards that produce excellent wine. It is seated on the Cardenero, thirty-six miles north-west of Barcelona.

CARDUUS, in botany, the thistle; a genus of the polygamia æqualis order, and syngenesia class of plants; order forty-ninth, compositæ: cal. ovate, imbricated with prickly scales, and the receptacle hairy. Of this genus there are thirty-six species, ten of which are natives of Britain, and, being troublesome well-known weeds, require no description. Some of the exotics are propagated in gardens for the sake of variety.

Carduus Benedictus. See Cnicus.

CA'RE, *v.* & *n.*
Ca'reful, *adj.*
Ca'refully, *adv.*
Ca'refulness, *n.*
Ca'reless, *adj.*
Ca'relessly, *adv.*
Ca'relessness, *n.*
Ca're-beguiling, *adj.*
Ca're-crazed, *adj.*
Ca're-defying, *adj.*
Ca're-tuned, *adj.*
Ca're-wounded, *adj.*

Mæs. Goth. *kara*, Ang.-Sax. care, cear; Lat. *cura*. The applications of the noun, the verb, and the adjectives and adverbs which are formed from them, are numerous. The noun expresses solicitude; anxiety; perturbation; concern; regard; and having charge of: it is used to give cautions, as in take care; and, familiarly, to manifest some degree of affection, and also defiance, as 'he cares not for me now'—'I care not for your threats;' and it also denotes the object of our attention and anxiety. The verb and its offspring, of course, partake of the nature of the noun. When the verb signifies to be inclined, to be disposed, it takes *for* before nouns, and *to* before verbs; when it means to be affected with, or to have a regard for, it takes *for*. Careless, which is frequently synonymous with cheerful, undisturbed, is combined with *of* and *about*. Careful, when it stands for provident or diligent, is followed by *of* or *for*; when it denotes watchful, cautious, it precedes *of*. Carefully, besides its obvious significations, has been employed, though not commonly, to mark a countenance wearing the lines of care. The compounds do not need any explanation.

Behold, thou hast been *careful* for us with all this *care*, what is to be done for thee? 2 *Kings* iv. 13.

Hear now this, thou that art given to pleasures, that dwellest *carelessly*. *Isaiah* xlvii. 8.

Martha, thou art *careful* and troubled about many things. *Luke* x. 41.

—————— Arviragus in all this *care*,
Hath sent his lettres home of his welfare,
And that he wol come hastily again,
Or elles had this sorwe hire herte slain.
Chaucer. Cant. Tales.

And in his way, it happed him to ride
In all his *care*, under a forest side. *Id.*

The piteous maiden, *careful*, comfortless,
Does throw out thrilling shrieks, and shrieking cries.
Spenser.

There he him found all *carelessly* displayed,
In secret shadow from the sunny ray. *Id.*

Knowing that if the worst befal them, they shall lose nothing but themselves, whereof they seem very *careless*. *Id. On Ireland.*

O my poor kingdom, sick with civil blows;
When that my *care* could not withhold thy riots,
What wilt thou do, when riot is thy *care*?
Shakspeare.

Well, sweet Jack, have a *care* of thyself. *Id.*

class of plants; order forty-ninth, compositæ. CAL. ovate, imbricated with prickly scales, and the receptacle hairy. Of this genus there are thirty-six species, ten of which are natives of Britain, and, being troublesome well-known weeds, require no description. Some of the exotics are propagated in gardens for the sake of variety.

CARDUUS BENEDICTUS. See CNICUS.

CA'RE, *v.* & *n.*
CA'REFUL, *adj.*
CA'REFULLY, *adv.*
CA'REFULNESS, *n.*
CA'RELESS, *adj.*
CA'RELESSLY, *adv.*
CA'RELESSNESS, *n.*
CA'RE-BEGUILING, *adj.*
CA'RE-CRAZED, *adj.*
CA'RE-DEFYING, *adj.*
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Well, sweet Jack, have a *care* of thyself. *Id.*

You dote on her that *cares* not for your love. *Id.*

By him that raised me to this *careful* height,
From that contented hap which I enjoyed. *Id.*

You come most *carefully* upon your hour. *Id.*

Nor lose the good advantage of his grace,
By seeming cold, or *careless* of his will. *Id.*

Many young gentlemen flock to him every day; and fleet the time *carelessly*, as they did in the golden world. *Id.*

For Coriolanus, neither to care whether they love or hate him, manifests the true knowledge he has of their disposition, and, out of his noble *carelessness*, lets them plainly see it. *Id.*

These both put off a poor petitioner,
The *care-crazed* mother of a many children. *Id.*

She *cared* not what pain she put her body to, since the better part, her mind, was laid under such agony. *Sidney.*

Every word he speaks is a syren's note
To drown the *careless* hearer.
Beaumont's Sea Voyage.

A woman, the more curious she is about her face, is commonly the more *careless* about her house. *Ben Jonson*

As the Germans, both in language and manners, differed from the Hungarians, so were they always at variance with them; and therefore much *cared* not, though they were by him subdued. *Knolles.*

The death of Selymus was, with all *carefulness*, concealed by Ferhates. *Id.*

Who, in the other extreme, only doth
Call a rough *carelessness* good fashion;
Whose cloak his spurs tear, or whom he spits on,
He *cares* not. *Donne.*

Welcome, thou pleasing slumber;
Awhile embrace me in thy leaden arms,
And charm my *careful* thoughts. *Denham.*

Not *caring* to observe the wind,
Or the new sea explore. *Waller.*

Not content to see,
That others write as *carelessly* as he. *Id.*

These are the effects of doting age;
Vain doubts, and idle *cares*, and over caution.
Dryden.

Or if I would take *care*, that *care* should be,
For wit that scorned the world, and lived like me.
Id.

Flushed were his cheeks, and glowing were his eyes:
Is she thy *care*? is she thy *care*? he cries? *Id.*

Well, on my terms thou wilt not be my heir;
If thou *carest* little, less shall be my *care*. *Id.*

To cure their mad ambition they were sent
To rule a distant province, each alone:
What could a *careful* father more have done. *Id.*

By considering him so *carefully* as I did before my attempt, I have made some faint resemblance of him. *Id.*

The foolish virgins had taken no *care* for a further supply after the oil, which was at first put into their lamps, was spent, as the wise had done. *Tillotson.*

The remarks are introduced by a compliment to the works of an author, who, I am sure, would not *care* for being praised at the expence of another's reputation. *Addison.*

Having been now acquainted, the two sexes did not *care* to part. *Id.*

Envy, how *carefully* does it look! how meagre and ill-complexioned! *Collier.*

The solemn notes bid earthly passions fly,
Lull all my *cares*, and lift my soul on high.
Swift.

None taught the trees a nobler race to bear,
Or more improved the vegetable *care*. *Pope*

Thus wisely *careless*, innocently gay,
Cheerful he played. *Id.*

The freedom of saying as many *careless* things as other people, without being so severely remarked on. *Id.*

I who at sometimes spend, at others spare,
Divided between *carelessness* and *care*. *Id.*

Where few are rich, few *care* for it, where many are so, many desire it. *Temple.*

Begone! the priest expects you at the altar.
But, tyrant, have a *care*, I come not thither.
A. Philips.

Careless of thunder from the clouds that break,
My only omens from your looks I take. *Granville.*

The court he quits to fly from *care*,
And seeks the peace of rural air;
His groves, his fields, amused his hours,
He pruned his trees, he raised his flowers;
But *care* again his steps pursues,
Warns him of blasts, of blighting dews,
Of plundering insects, snails, and rains,
And droughts that starved the laboured plains:
Abroad, at home, the spectre's there,
In vain we seek to fly from *care*. *Gay.*

Soon as the morning lark salutes the day,
Through dewy fields I take my frequent way,
Where I behold a farmer's early *care*,
In the revolving labours of the year. *Id.*

Martha (her *careful* mother's name) she bore,
But now her *careful* mother was no more. *Id.*

O what passion then,
What melting sentiments of kindly *care*,
On the new parents seize. *Thomson.*

In my cheerful morn of life,
When nursed by *careless* solitude I lived,
And sung of nature with unceasing joy,
Pleased how I wandered through your rough domain.
Id.

Then, pilgrim, turn, thy *cares* forego,
All earth-born *cares* are wrong:
Man wants but little here below,
Nor wants that little long. *Goldsmith's Hermit.*

She loves to wander on the untrodden lawn,
Or the green bosom of reclining hill,
Soothed by the *careless* warbler of the dawn.
Or the lone plaint of ever-murmuring rill.
Beattie.

From such apostles, oh ye mitred heads,
Preserve the church! and lay not *careless* hands
On sculls that cannot teach and will not learn.
Cowper

These eyes that tell us what the sun is made of,
Born to be ploughed with years, and sown with *cares*,
And reaped by death, lord of the human soil.
Byron.

CARE'EN, *v. a.* & *n.*
CARE'ENAGE, *n.*

Fr. *carener*, from Lat. *carina*, a heel. Trimming and repairing the bottom of a vessel. See the next article. The neuter verb signifies to be in a state of careenage. When the workmen cannot come at the bottom of the ship, and therefore can only careen part of her, it is called a half-careen. Careenage is the place where the operation is performed, and also the money given for careening.

The fleet *careened*, the winds propitious filled
The swelling sails, the glittering transports waved
Their pennons gay, and halcyon's azure wing
With flight auspicious skimmed the placid main.
Shenstone.

CAREENING. A ship is said to be brought to the careen, when most of her lading being taken out, she is is hulled down on one side, by a small vessel, as low as necessary; and there kept by the weight of the ballast, ordnance, &c. as well as by ropes, lest her masts should be strained too much; in order that her sides and bottom may be trimmed, seams caulked, or any thing that is faulty under water mended. Hence, when a ship lies on one side when she sails, she is said to sail on the careen.

CARE'ER, *v.* & *n.* Fr. *carriere*; Ital. *carriera*; Span. *carrera*; Lat. *currere*. To career is to move with a rapid motion. The noun denotes the ground on which a race is run; the space run over; the act of running swiftly; fulness of speed; velocity of motion; an uninterrupted course of action.

They had run themselves too far out of breath to go back the same *career*. *Sidney.*

What reign can hold licentious wickedness,
When down the hill he holds his fierce *career*.
Shakspeare.

Shall quips and sentences, and these paper bullets of the brain, undo a man from his *career* of humour. *Id.*

The sun
Declined, was hasting now with prone *career*,
To the ocean isles, and in the ascending scale
Of heaven, the stars that usher evening rose.
Milton.

With eyes, the wheels
Of beryl, and *careering* fires between. *Id.*

Through optick trunck the planet seemed to hear,
And hurls them off e'er since in his *career*. *Marvell.*

Knights in knightly deeds should persevere,
And still continue what at first they were;
Continue and proceed in honour's fair *career*.
Dryden.

Practice them now to curb the turning steed
Mocking the foe; now to his rapid speed
To give the rein, and, in the full *career*,
To draw the certain sword, or send the pointed spear.
Prior.

And but Gualthirerus' ready aid was near,
(His father's offspring by a foreign bed)
Here he had run his last of life's *career*,
And swelled the growing number of the dead.
Gay.

While storms remote but murmur in thy ear,
Nor waves in ruinous uproar round thee roll,
Yet yet a moment check thy proud *career*,
And curb the keen resolve that prompts thy soul.
Beattie.

Or rein the planets in their swift *careers*,
Gilding with borrowed light their twinkling spheres.
Darwin.

CARELIA, the eastern province of Finland, extending from Savolaxia on the north, to the gulf of Finland on the south. In the thirteenth century it became subject to Sweden, but in 1809 was ceded to Russia. It is now almost entirely included in the government of Wiborg and is thinly peopled, abounding in lakes and marshes.

CARENTAN, a town of France, in the department of the Channel, and chief place of a canton, in the district of St. Lô, situate in a marshy soil, which makes the air insalubrious. It has a port for small vessels; its principal commerce consists of butter and cattle. Lat. 49° 18' N., long. 1° 21' 50" W.

CA'RENTANE, *n.* *quarantaine*; Lat. *quadragena*, or *quarantena*. A papal indulgence, multiplying forty-fold the remission of penance.

CARES, or KARES, a town of European Turkey, seated on Mount Athos, in an elevated and pleasant situation; it has several convents, and a market every Saturday for corn and other provisions. It is seventeen miles south-east of Saloniki.

CARESAN, or CASSEN, a sea-port town of Arabia Felix, seated on the Indian Ocean, 100 leagues north-east from Aden. Lat. 16° 5' N., long. 52° 7' E.

CARE'SS, *v.* & *n.* Fr. *caresser*; *Ital. carezzare*; Sp. *acariciar*. This word, which seems not to have been in use in our language much more than a century and a half, has given rise to disputes among the etymologists. Skinner sharply reprehends Junius for deriving it from Χαριζεσθαι, and declares that it is manifestly from the Latin *carus*; while Lye as vehemently censures him, and contends for its Armorican origin. Casaubon also is of a different opinion from Junius, and derives the word from καταρεζειν, and with him Mr. Todd agrees. In Welsh, *caredig*, is beloved, loving, kind; and *carez* is excess of love; which gives some countenance to Lye's opinion. To caress is to treat with endearments, with blandishments; to fondle; and, as we say in familiar language, to make much of.

He she knew, would intermix
Grateful digressions, and solve high dispute
With conjugal *caresses*. *Milton.*

If I can feast, and please, and *caress* my mind with the pleasures of worthy speculations, or virtuous practises, let greatness and malice vex and abridge me if they can. *South.*

After his successor had publicly owned himself a Roman Catholick, he began with his first *caresses* to the church party. *Swift.*

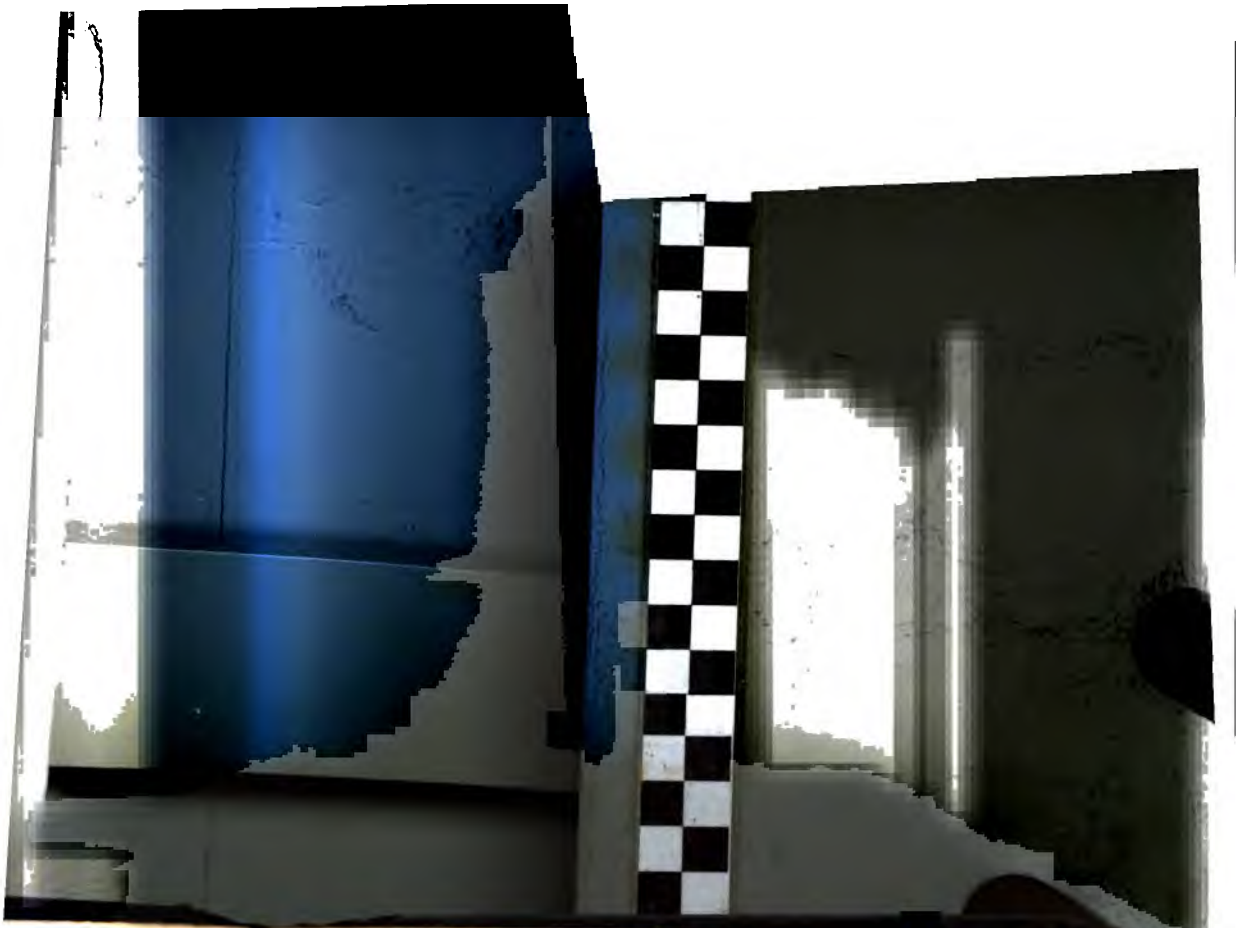
A snappish cur alone *carest*,
By lies had banished all the rest. *Gay.*

On Latmos' top see young Endymion lies,
Feigned sleep hath closed the bloomy lover's eyes,
See to her soft embraces how she steals,
And on his lips her warm *caresses* seals. *Id.*

Drear anguish urged her on to press
Full many a hand, as wild she mourned;
Of comfort glad, the drear *caress*
The damp, chill, dying hand returned.
Penrose.

Pale are those lips where soft *caresses* hung,
Wan the warm cheek, and mute the tender tongue,
Cold rests that feeling heart on Derwent's shore,
And those love-lighted eye-balls roll no more.
Darwin.

Ah! fondly youthful hearts can press,
To seize and share the dear *caress*.
Byron's Giaour.



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CARET, *n.* Lat. *caret*, there is wanting. A note, like an inverted capital A, between two words, to denote that something has been omitted, and is interlined.

CAREW (George), an eminent commander in Ireland, born in Devonshire, in 1557. He was made president of Munster by queen Elizabeth; when, joining his forces with the earl of Thomond, he reduced the Irish insurgents, and brought the earl of Desmond to his trial. King James I. made him governor of Guernsey, and created him baron. He was an elegant scholar, and wrote Pacata Hibernia, a history of the late wars in Ireland, printed after his death in 1633. He made several collections for a history of Henry V. which are digested into Speed's History of Great Britain. Besides these, he collected materials of Irish history, in four large MS. volumes, now in the Bodleian library, Oxford.

CAREW (Richard), the eldest son of Thomas Carew, of East Anthony, and author of the Survey of Cornwall, was born in 1555. When very young he became a commoner of Christ Church College, Oxford; and at fourteen years of age had the honor of disputing, extempore, with the afterwards famous Sir Philip Sidney, in the presence of the earls of Leicester, Warwick, and other nobility. After spending three years at the university, he spent other three at the Middle Temple, and then travelled. Not long after his return to England, he married, in 1577, Juliana Arundel, of Trerice. In 1581 he was made justice of the peace, and, in 1586, high sheriff of Cornwall. In 1589 he was elected a member of the College of Antiquaries. His Survey of Cornwall was published, in 4to. at London, in 1602; and has been twice reprinted, in 1723, and 1769. Of this work Camden has spoken in high terms. He translated a work from the Italian, entitled, The Examination of Men's Wits: in which, by discovering the variety of natures, is showed for what profession each one is apt, and how far he shall profit therein. This was published at London, 1594 and 1604; but has been principally ascribed by some to his father. Carew wrote also, The true and ready Way to Learn the Latin Tongue. He was a gentleman of abilities and literature, and was held in great esteem by the most eminent scholars of his time, particularly Sir Henry Spelman.

CAREW (Sir George), younger brother of Richard, was educated at Oxford, studied the law in the inns of court, and then travelled for farther improvement. On his return he was called to the bar, and after some time appointed secretary to Sir Christopher Hatton, lord chancellor, by the special recommendation of queen Elizabeth, who gave him a prothonotaryship in the chancery, and conferred on him the honor of knighthood. In 1597 he was sent ambassador to the king of Poland. Under king James I. he was one of the commissioners for treating with the Scots concerning a union between the two kingdoms; after which he was appointed ambassador to France, where he continued from the end of 1605 till 1609. He there formed an intimacy with Thuanus, to whom he communicated an account of the transactions in Poland, whilst he was employed there, which was of great service to that admirable author in drawing up the twenty-first book of his history. After Sir George's return from France, he was appointed master of the court of Wards, which he did not long live to enjoy, for it appears by a letter from Thuanus to Camden, in 1613, that he was then lately deceased. Sir George married Thomasine, daughter of Sir Francis Godolphin, great-grandfather of the lord treasurer Godolphin, and had by her two sons and three daughters. When Sir George returned from his French embassy, he drew up, and addressed to James I. A Relation of the State of France, with the characters of Henry IV. and the principal Persons of that Court. The characters are drawn from personal knowledge and close observation, and might be of service to an historian. The composition is perspicuous and manly, and entirely free from the pedantry which prevailed in the reign of James I. This valuable tract lay long in MS. till Dr. Birch published it in 1749, at the end of his Historical View of the Negociations between the Courts of England, France, and Brussels, from 1592 to 1617.

CAREW (Thomas), descended from the family of Carew, in Gloucestershire, was gentleman of the privy chamber to Charles I. who always esteemed him one of the most celebrated wits of his court. He was the companion of Ben Jonson and Sir William Davenant, and left behind him several poems, and a masque, called Cælum Britannicum, performed at Whitehall by the king and several of his nobles, with their sons. Carew was assisted in the contrivance by Inigo Jones, and the music was set by Henry Lawes. He died in the prime of life, about 1639.

CAREX, sedge grass, in botany, a genus of plants, of the monœcia order, in the triandria class of plants, natural order third, calamariæ. The characters are male flowers, digested into a long spike: CAL. an oblong and imbricated omentum, consisting of acute, hollow, and lanceolated scales, each containing one flower: COR. none; the stamina are three erect setaceous filaments of the length of the calyx; the antheræ are oblong and erect. In the female flowers the CAL. the same as in the male; there are no petals, but an inflated oblong nectarium; the germen is triangular, and is placed within the nectarium; the style is very short; the stigmata are two or three, long, crooked, pointed, and hoary. The nectarium grows larger when the flower is fallen, and contains the seed, which is single, of an acute ovate form, triangular, and has one of its angles usually much smaller than the others. There are ninety-eight species, too well known to need any description.

CARGADORS, a name which the Dutch give to those brokers whose business is to find freight for ships outward bound, and to give notice to the merchants, who have commodities to send by sea, of the ships that are ready to sail, and of the places for which they are bound.

CA'RGASON, *n.* } Fr. *charge*, says Dr.
CA'RGO, *n.* } Johnson. Todd refers to Old Fr. *cargue*, and the Ital. *carico* or *carco*, a burden. Skinner goes to the Lat. *carrus*. In Span. *cargo*, and *cargazon*. But the original may be traced to the Welsh *carg*, pl. *cargos*, a

charge, load, or cargo. A ship's lading; the merchandise conveyed in her.

> My body is a *cargason* of ill-humours.
>
> *Howell.*

> A ship whose *cargo* was no less than a whole world, that carried the fortune and hopes of all posterity.
>
> *Burnet's Theory.*

> This gentleman was then a young adventurer in the republic of letters, and just fitted out for the university with a good *cargo* of Latin and Greek.
>
> *Addison.*

> One gang of people instantly was put
> Upon the pumps, and the remainder set
> To get up part of the *cargo*, and what not,
> But they could not come at the leak as yet.
>
> *Byron's Don Juan.*

CARGILLITES, a denomination given to a religious sect in Scotland, more generally known by that of Cameronians. See CAMERONIANS.

CARIA, in ancient geography, a country of Asia, whose limits are extended by some, and contracted by others. Mela and Pliny extend the maritime Caria from Jasus and Halicarnassus, to Calynda, and the borders of Lycia. Ptolemy extends the inland Caria to the Meander and beyond.

CARIACO, a city in the Colombian new province of Orinoco, containing a population of about 6000. It is seated near the shore of the Carribean Sea, but is approached up a gulf or bay, extending from west to east about forty miles; on the south shore of the entrance to this gulf, is the city of Cumana, which may be regarded as the great out-port of the country, bordering on the river and gulf of Cariaco, as well as of that town, see therefore CUMANA.

CARIANS, CARIATES, or CARIATIDES, the inhabitants of Caria, called also Cares, Carissæ, Carides, and Cariæ. The Carians being the Swiss of those days, were hired and placed in the front of the battle. Cum care Carissa, denoted the behaviour of clowns. The Carians are said to have come originally from the islands to the continent, and to have been formerly subject to Minos, and called Leleges. They are of a common original with the Mysi and Lydi, having a common temple, of very ancient standing, at Melassa, a town of Caria, called Jovis Carii Delubrum. Homer calls them barbarians in language.

CARIATIDES. See CARIANS and CARYATIDES.

CARIBBEE ISLANDS, a chain of islands, forming the south-eastern boundary of the West India Seas, lying between the island of Trinidad in the lat. of 10° N. and Porto Rico, or the Virgin Islands, in the lat. of 18° N. The following list exhibits the several islands in geographical order, beginning in the south; with the latitude and longitude of the principal town or port of each island, viz.

WINDWARD.

	Lat.			Long.		
1. Tobago . .	11°	22′	N.	60°	32′	W.
2. Grenada . .	12	3	—	61	50	—
3. Barbadoes .	13	5	—	59	43	—
4. St. Vincent .	13	9	—	61	15	—
5. St. Lucia . .	13	57	—	61	7	—
6. Martinique .	14	36	—	61	7	—

LEEWARD.

7. Dominica . .	15°	18′	N.	61°	28′	W.
8 Mariegalante .	15	52	—	61	22	—
9. Guadaloupe .	16	0	—	61	48	—
— Deseada . .	16	20	—	61	7	—
10. Montserrat . .	16	48	—	62	17	—
11. Antigua . .	17	3	—	61	50	—
12. Nevis . . .	17	10	—	62	43	—
13. St. Kitts . .	17	19	—	62	49	—
14. St. Eustatia .	17	29	—	63	4	—
15. Barbuda . .	17	47	—	62	2	—
16. St. Bartholomew	17	54	—	62	52	—
17. St. Martin . .	18	1	—	63	7	—
18. Anguilla . .	18	11	—	63	16	—

In addition to the above, there are several small islands dependent on Grenada, and two or three more dependent on Guadaloupe. This groupe of islands was discovered by Columbus on his second voyage; he made the island of Deseada on the 26th of September, 1493, after which he successively visited Dominica, Guadaloupe, and several others; the whole of the Islands in the American Seas were originally designated the West Indies; but the above groupe were found inhabited by a numerous race of men, more robust and energetic than those of the large islands of Cuba, Hayti, Jamaica, and Porto Rico, though apparently of the same common origin or stock; the people being called Caribs has occasioned the islands to be distinguished by their name, of the Caribbees. Those north of Martinique are denominated by nautical men, the leeward; and those on the south, the windward; and they are sometimes called the Greater Antilles, to distinguish them from another groupe of islands which flank the coast of Caraccas, or what is now the north coast of Columbia, which is called the Lesser Antilles. Originally the whole of the islands in the American Seas were granted by the pope of Rome, in full title to Spain; but the Caribbees appear not to have been taken possession of, or even claimed by them, until the English, French and Dutch severally contended for empire in the west. The period of their falling into the hands of the different European powers, and which of those powers, will be found under the heads of the respective islands, as will also the extent, several local properties, and productions of each; the native inhabitants will be seen to have fallen a sacrifice to the cruelty, avarice, and contending passions of the several Europeans who alternately held possession of the different islands, until, in 1660, the whole of the remaining native inhabitants were concentrated upon the island St. Vincent, where scarce an individual now remains. The race as in all the larger islands may be said to be extinct. At present, 1826, of the Caribbees, Martinique, Guadaloupe, Desenda, and its other dependancies, are held by the French; St. Eustatia by the Dutch; St. Bartholomew by the Swedes; and the remainder by the English. See WEST INDIES.

CARIBBEAN SEA, is that part of the Atlantic Oceän within, or west of the Caribbee Isles, in the long. of 62° W.; or, as laid down in the preceding article, extending west to the bay of Honduras, in long. 84° W.; bounded on the north by Jamaica, St. Domingo, Porto Rico, and the Virgin Islands, and south by the Spanish main, or north coast of the new republic of Colombia, comprising a surface of water exceeding 500,000 geographical miles.

CARICA, the papaw, a genus of the decandria order, and diœcia class of plants, natural, order, thirty-eighth, tricoccæ: CAL. of the male, almost none: COR. quinquefid and funnel-shaped; the filaments in the tube of the corolla, a longer and shorter one alternately: CAL. of the female quinquedentated: COR. pentapetalous, with five stigmata; the fruit an unilocular and polyspermous berry. 1. C. papaya, rises with a thick, soft, herbaceous stem, to the height of eighteen or twenty feet, naked till within two or three feet of the top. The leaves come out on every side, upon very long foot-stalks. Those undermost are almost horizontal, but those on the top are erect; in full grown plants they are very large, and divided into many lobes deeply sinuated. The flowers of the male plant are produced from between the leaves on the upper part of the plant: these are of a pure white, and have an agreeable odor. The flowers of the female papaya also come out from between the leaves towards the upper part of the plant; they are large, bell-shaped, composed of six petals, and commonly yellow; when these fall away, the germen swells to a large fleshy fruit, of the size of a small melon. These fruits are of different forms, some angular and compressed at both ends; others oval or globular, and some pyramidal. When the roundish fruit are nearly ripe, the inhabitants of India boil and eat them with their meat, as we do turnips. They have somewhat the flavor of a pompion. Previous to boiling they soak them for some time in salt and water, to extract the corrosive juice; but they mostly pickle the long fruit, and thus they make no bad succedaneum for mango. The buds of the female flowers are gathered, and made into a sweet meat; and the shells of the ripe fruit are boiled, and, with the insides, are eaten with sugar and pepper, like melons. 2. C. prosoposa differs from the other in having a branching stalk, the lobes of the other shaped like a pear, and of a sweeter flavor than the papaya. Both species are natives of hot countries, they cannot be preserved in Britain unless constantly kept in a warm stove. They are easily propagated by seeds, which are annually brought in plenty from the West Indies, though the seeds of the European plants ripen well. When grown to a large size, they make a noble appearance with their long upright stems, garnished on every side near the top with large shining leaves, spreading to nearly three feet all round the stem: the flowers of the male sort coming out in clusters on every side, and the fruit of the female growing round the stalks between the leaves, are so different from anything of European production, as well as to entitle these plants to a place in the gardens of the curious.

CARICATURA, in painting, denotes the concealment of real beauties, and the exaggeration of blemishes, but still so as to preserve a resemblance of the object. It was practised by the ancients, as well as by many eminent modern artists; there are several on the walls of Herculaneum, one of which in particular represented Æneas, Anchises, and Ascanius, with the heads of hogs and an ape. English artists have long been celebrated for indulging the satirical vein in painting, and multitudes of caricatures are daily making their appearance on public men and manners. If Hogarth is excepted as a painter of a higher class, no one has excelled Gillray in this branch of art. The two Cruikshanks at present are at the head of this department, and have often approached the best of Gillray's works.

CARICATUR'E, *v.* & *n.*
CARICATU'RA, *n.*
CARICATU'RIST, *n.*
Ital. *caricatura*, to load or overcharge. A caricature is a colored or distorted representation, which exaggerates defects of person or style, to a ridiculous excess, yet preserves a resemblance of the object. The caricaturist is an artist, who may often make us laugh, but whom we seldom esteem. It is in the service of politics that this deforming art is most frequently employed.

CA'RICOUS TUMORS, *n.* Lat. *carica*, a fig. A tumor in the form of a fig.

CARIDES, or CARIDA, a town of Asia Minor, in Phrygia.

CARIDIEN, an island of Asia, in the Indian Sea, near the west coast of the island of Ceylon; twelve miles long and two wide.

CA'RIES, *n.*
CARIO'SITY, *n.*
CA'RIOUS, *adj.*
Lat. *caries*. The rottenness peculiar to a bone; rottenness; rotten. See MEDICINE and SURGERY. Indexes.

> Fistulas of long continuance, are, for the most part, accompanied with ulcerations of the gland, and *caries* in the bone. *Wiseman.*
>
> This is too general, taking in all *cariosity* and ulcers of the bones. *Id.*
>
> I discovered the blood to arise by a *carious* tooth. *Id.*

CARILLONS, a species of chimes frequent in the ci-devant Netherlands, particularly at Ghent and Antwerp, and played on a number of bells in a belfrey, forming a complete scale of tones and semitones, like those on the harpsichord and organ. There are pedals communicating with the great bells, upon which the carilloneur with his feet plays the base to sprightly airs performed with the two hands upon the upper species of keys. These keys are projecting sticks, wide enough asunder to be struck with violence and velocity by either of the hands edgeways, without danger of hitting the neighbouring key. The player is provided with a thick leather covering for the little finger of each hand, to guard against the violence of the stroke. They are heard through a large town. The music bells of Edinburgh are a species of carillons

CARINA, Lat. The keel of a ship, or that long piece of timber running along the bottom of the ship from head to stern, upon which the whole structure is built. It is also used for the whole capacity of a ship, containing all the space below the decks; and sometimes for the whole ship. Among anatomists it is used, 1. to denote the spina dorsi; 2. the embryo of a chick appearing in an incubated egg. It consists of the entire vertebræ, as they appear after ten or twelve days incubation. It is thus called, because crooked in the form of the keel of a ship. Among botanists it is used for the lower petalum of a papilionaceous flower.

CARINÆ, women hired among the ancient Romans to weep at funerals: thus called from Caria, the country whence most of them came.

CA'RINATED, *adj.* Lat. *carina.* Bent like the hull of a ship; whence, in botany, a leaf, a scale, a nectary, is said to be carinated, when it is longitudinally hollow above, and has a corresponding sharpish protuberance beneath.

CARINTHIA, Duchy of, an interior province or division of the Austrian empire, lying between the lat. of 46° 21' and 47° 6' N. and 12° 30' to 14° 50' of E. long. comprising an area of about 3500 English square miles; the west end borders on the Tyrol, and it is bounded on the north by the bishopric of Saltzburgh and Upper Styria, east by Lower Styria, and south by Upper Carniola, and the Venetian territory. The river Drave, which rises in the Tyrol and falls into the Danube at Belgrade, intersects Carinthia; its whole extent from west to east receiving several tributary streams, both from the north and south. There are also several lakes, which, as well as the rivers, yield abundance of excellent fish. It is a mountainous and woody district, the mountains yielding abundance of iron, lead, and copper, as well as quicksilver, bismuth, and zinc, and also the purest marbles, and a variety of gems; whilst the forests abound with the finest timber, the valleys afford some excellent pasturage, as well as fertile lands for tillage; but being edged in by mountains both on the north and south, whilst the remoteness of the course of the Drave precludes it from being made available as a channel of conveyance, the rich store of natural products which this district contains are of little advantage either to the inhabitants or to the world. Could a water communication be obtained with the Adriatic, which, by a social and reciprocal order of society, might be effected with the west end of the province, either by the Tajamento, or the Piave, Carinthia might then rank among the most interesting and important districts of Europe; but under the bigoted, blind, and passive policy of Austria, the inhabitants of Carinthia pass away their time in indolence and apathy; such supply of foreign productions as they do get being obtained in exchange for the cattle which are driven to the markets of the towns of Italy. Carinthia at one time formed part of the territory of Bavaria, but on Rodolphus attaining the imperial dignity, he conferred it in 1282 on Maynard, count of Tyrol, on condition that it should revert to the house of Austria, in default of Maynard's male issue, which happened in 1331. It was overrun by the French under Buonaparte, during his campaign in Italy; he had his head quarters at Villach in March 1797, but it has since reverted again to Austria, and is divided for local jurisdiction into two parts, Upper and Lower; the former on the west, containing about 175,000 inhabitants, and the latter on the east, about 105,000. The principal towns in the upper part are Gmund and Villach; and in the lower, Clagenfurt (which is the capital of the duchy), Wolfsberg, Wolfenmarck, Pleyburg, &c. The inhabitants, who speak chiefly the Sclavonian language, are bigoted adherents to the ceremonies of the Romish church, and contribute to the Austrian government an impost of about £250,000 English per annum.

CARIOSUS, rotten stone, in oryctology, a genus of argillaceous earths; consisting of alumine, silica, and carbonate of lime, with a small portion of iron; light, soft, falling to powder in water; effervescing with nitric acid; hardening a little red in the fire. One species only. Found in Derbyshire and other coal countries; generally over veins of coal; colors dirty yellow, dull brown, or gray. It easily moulders in the open air, for which reason it has been denominated rotten-stone. It is principally used for polishing metals and other substances.

CARIPI, a kind of cavalry in the Turkish army. Of these about 1000 are not slaves, nor bred up in the seraglio, like the rest; but are generally Moors or renegado Christians, who, being poor, and having their fortune to seek by their dexterity and courage, have arrived at the rank of horse guards to the grand seignior.

CARISBROOK, a village contiguous to Newport, in the Isle of Wight, remarkable for its castle and church, which are both very ancient. The church had once a convent of monks annexed, part of which is now a farm-house, still retaining the name of the priory. The castle, which is a picturesque edifice, stands on an eminence, and was the prison of Charles I. in 1647, before he was delivered to the parliament forces. It is now nominally the seat of the governor of the Isle of Wight. See Isle of Wight.

CARISSA, in botany, a genus of the monogynia order and pentandria class of plants; natural order thirtieth, contortæ: cor. twisted; berries one or two; many-seeded. Five species; some spinous, others unarmed; all Indian plants. The fruit of C. carandus is eaten by the natives, and is of pleasant taste.

CARITATIS Poculum, the grace cup, was an extraordinary allowance of wine or other liquors, wherein the religious at festivals drank in commemoration of their founder and benefactors.

CA'RK, *v.* & *n.* } Welsh, & Ang.-Sax. carc.
Ca'rking, *n.* } This seems a sufficiently satisfactory derivation; but Junius chooses to go further a field, and makes Καρκαιρω the parent word, though with no small portion of etymological distortion. *Carc* in the Welsh means care, solicitude, anxiety; *carcus*, solicitous, anxious, careful. The sense of the English word is the same. Cark as a noun is obsolete; the verb is nearly so, and is always used in an ill sense. Unconnected with this, and whence derived I know not, is carke; denoting, says Minsheu, 'a quantity of wool, whereof thirty make a sarpler,' equal to half a sack.

> What pathe liste you to treade? what trade will you assay?
> The courts of plea by braule and bate drive gecie peace away.

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In house for wife and childe there is but *carke* and care,
With travel and with toyle enough in fields we used to fair. *Man's Life; in Uncertaine Auctors.*

He down did lay
His heavy head, devoid of careful *cark*
Spenser.

And Klaius taking for his younglings' *carke*,
Lest greedy eyes to them might challenge lay,
Busy with oker did their shoulders mark.
Sidney.

Hark, my husband, he's singing and hoiting;
And I'm fair to *carke* and care, and all little enough.
Beaumont and Fletcher.

What can be vainer, than to lavish out our lives in the search of trifles, and to lie *carking* for the unprofitable goods of this world? *L'Estrange.*

CA'RLE, *v.* & *n.*
CA'RLISH, *adj.*
CA'RLISHNESS, *n.*
CA'RLOT, *n.*
} Goth. *karl*, in which language it meant simply a man; Welsh, *carl*, a covetous man; Ang.-Sax. carl, a miser, a rustic, a male. Its usual acceptation, in English, is a mean, uncivilised, rough, brutal, man. In England this word is now superseded by churl it still obtains in Scotland. Carle, Johnson tells us, is also the name of a kind of hemp. Tusser has 'the fimble, to spin, and the carl for her seed;' from which it is evident that carle is female hemp. Carlot signifies a countryman, says Todd; and in the quotation from Shakspeare it undoubtedly is so, but it will not bear such a construction in the extract from Drayton, the person there alluded to being a peer.

His knave was a strong *carle* for the nones,
And by the haspe he haf it of at ones;
Into the flore the dore fell anon.
Chaucer. Cant. Tales.

Right in the midst, whereas they breast to breast,
Should meet a trap was letten downe to fall
Into the floud; straight leapt the *carle* unblest,
Well weening that his foe was falne withall;
But he was well aware and lept before his fall.
Spenser.

The next year Hardicanute sending his house *carles*, so they called his officers, to gather the tribute imposed; two of them rigorous in their office were slain at Worcester by the people; whereat the king enraged sent Leofric, duke of Mercia, and Seward of Northumberland, with great forces and commission to slay the citizens, rifle and burn the city, and waste the whole province. *Milton. Hist. of Eng.*

Answer, thou *carle*, and judge this riddle right,
I'll frankly own thee for a cunning wight. *Gay.*

The editor was a covetous *carle*, and would have his pearls of the highest price. *Bentley.*

CARLEBY, OLD AND NEW, two towns on the coast of West Bothnia, about fifty miles north of Wasa.

CARLETON (George), a learned bishop of the seventeenth century, born at Norham, in Northumberland, in 1559. He was principally indebted for his education, both at school and at the university, to the liberality of Bernard Gilpin. Upon quitting the university, he was advanced, in 1617, without any previous ecclesiastical preferment, to the bishopric of Llandaff. He was a person of solid judgment, and various reading. To the papists he was a bitter foe and with regard to the doctrine of predestination, a rigid Calvinistn. He published many works, both in English and Latin, the principal among which are his Heroici Characteres, or Heroic Characters, Oxon. 4to. 1603; Tythes Examined, and proved to be due to the Clergy by a Divine Right, Lond. 4to. 1606–1611; Jurisdiction Royal, Episcopal and Papal, wherein is declared how the Pope hath intruded upon the jurisdiction of temporal princes, and of the church, &c. Lond. 4to. 1610; Astrologimania, a treatise against Judicial Astrology, 4to. 1624; Vita Bernardi Gilpin, 4to. 1626; this work was translated into English in 1629. He sat in the Short Parliament, for Arundel in Sussex.

CARLINA, the carline thistle: a genus of the polygamia æqualis order, and syngenesia class of plants; natural order forty-ninth, compositæ: CAL. is radiated with long colored marginal scales. There are twelve known species. C. vulgaris is the only one that is a native of Britain. All the others are natives of the south of France or Italy; and are very easily propagated in this country by seeds, which must be sown on a bed of fresh undunged earth, where they are to remain, as they do not bear transplanting. The second year most of them will flower; but rarely produce good seeds in this country, and some of the plants decay soon after they have flowered, so that it is difficult to maintain them here. The roots are used in medicine, and for that purpose are imported. As we receive them they are about an inch thick, externally of a rusty brown color corroded as it were on the surface, and perforated with numerous small holes, appearing as if worm eaten. They have a strong smell, and a sub-acid, bitterish, weakly aromatic taste. They are reckoned warm alexipharmics and diaphoretics. Hoffman the Elder relates that he has observed a decoction of them in broth occasion vomiting. They have been for some time greatly esteemed among foreign physicians; but never were much in use in this country. The present practice entirely rejects them, nor are they often to be met with in the shops.

CARLINE KNEES are timbers going athwart a ship, from the sides to the hatch-way, serving to sustain the deck on both sides.

CARLINGFORD, a populous parish and town in the county of Louth, Ireland. The parish comprises a promontory between Dundalk and Carlingford Bay. The town is situate on the south shore of the bay of Carlingford, and is noted for its oyster fishery; it is a corporate town, and returns two members to the Irish parliament. It is eight miles south of Newry, and fifty-two north of Dublin.

CARLINWARK LOCH, a lake in Kirkcudbrightshire, originally 116 square acres in extent; but reduced in 1765 to eighty, ten feet of water being then taken off by a canal to the Dee. It is a great source of improvement to the adjacent grounds, as it contains an inexhaustible fund of the very best shell marl. It was sold in 1788, for £2000 sterling. Before it was drained there were two isles in it, at the north and south ends, on which water fowls bred in great abundance. Many antiquities were found in it, particularly a brass dagger, plated with gold, twenty-two inches long, and several canoes hollowed out like those of the American Indians.

CARLISLE, a city, bishop's see, and capital of the county of Cumberland, England, is situate at the junction of three rivers, Calder, Petterill, and Eden, about six miles above the entrance of the united streams into Solway Frith, and thirteen miles from the south-west frontier of Scotland. Carlisle has held a distinguished rank among the cities of England, in every period of British history, and is supposed to have been first founded by Luil, a native Briton, long before the irruption of the Romans into England. The contiguity of Carlisle to Scotland, during the less social habits, and distinctiveness of interest, of the people of that country, frequently exposed it to their depredations; to avoid which, the Romans, on their possessing themselves of this part of England, erected a wall from Solway Frith to the German Ocean, which included on one side Carlisle, and on the other, Newcastle within its southern limits. After the departure of the Romans from England, the Roman wall did not prevent the Scots and Picts from renewing their incursions, and they soon reduced Carlisle to a heap of ruins, in which state it continued till 680, when Egbert king of Northumberland encompassed it with a wall, and repaired its church; but it was again doomed to destruction in the eighth and ninth centuries, by the Norwegians and Danes, and it remained in this state until after the Norman conquest, when it was further protected by a citadel and castle, built by William Rufus, having three gates, called the English, Irish, and Scotch, with reference to their bearing on the side of each respective country. These defences, however, did not prevent it from falling into the possession of the Scots, who held it alternately with the English from the period of William Rufus, to that of Henry VII. It was constituted a bishop's see by Henry I., destroyed by fire by the Scots, in the reign of Henry III., and experienced the same disaster twice in the following reign. In 1568 the castle was made the prison house of the unfortunate Mary of Scotland; in 1645 it surrendered, through famine, to the parliamentary force; and in 1745 fell into the possession of the partizans of the Pretender, but was immediately after retaken by the duke of Cumberland, who demolished the gates and part of the wall; and it has since that period enjoyed an uninterrupted tranquillity. Since the commencement of the present century, it has undergone great improvements: and on the site of the citadel two commodious courthouses have been erected, the county gaol rebuilt, a handsome stone bridge built over the Eden, with other improvements have contributed to render it one of the most agreeable and interesting cities of England. The castle is still kept in repair, and serves, with other purposes, for a magazine, and an armoury of about 10,000 stand of arms. The cathedral is a stately and venerable edifice, partly of Saxon and partly of Gothic architecture; there are two other churches, as well as several meeting houses. The markets, on Wednesdays and Saturdays, are well supplied with every thing necessary for subsistence and comfort. The cotton manufacture has established itself upon an extended scale in this city, whilst the architectural and external appearances of the city have indicated great social improvement and national prosperity. The conveyance of its commodities of commerce has been facilitated by a canal to the Solway Frith, and it is a point of union and interchange for the mails to all parts of England, Scotland, and Ireland. Its corporation consists of a mayor, twelve aldermen, &c. It returns two members to parliament, and is 101 miles south-east of Glasgow, ninety-one south by east of Edinburgh, and 303 N. N. W. of London.

CARLISLE, a town of Schoarie county, state of New York. Population in 1820, 1583; forty miles west of Albany.

CARLISLE, a town of Pennsylvania, capital of Cumberland county, with a college, and four edifices for public worship. It is situate near a creek of the Susquehannah, 100 miles west by north of Philadelphia.

CARLISLE BAY, on the south coast of Jamaica; west coast of Barbadoes, and island of Antigua.

CARLISLE (Frederic Howard), earl of, was born in May 1748, his mother being Isabella Byron, sister of Admiral Byron, whose life we have sketched. He was brought up at Eton with Mr. Fox; and finished his education at Christ Church, Oxford. In 1777 he was appointed treasurer of the royal household, and appointed in the following year one of the British commissioners to adjust the differences between the mother country and her then revolted American colonies: but the mission, it is well known, proved wholly abortive. In 1780 he was viceroy of Ireland. As a writer he is known by a tragedy called the Father's Revenge, which received the decided approbation of Dr. Johnson, the Stepmother, a tragedy, and some Poems. His nephew, Lord Byron, as we have shown, treated the poetical character of this nobleman with great contempt in his English Bards and Scotch Reviewers: but there was evidently more of private pique in the affair, than any steadiness of judgment. See BYRON. Lord Carlisle married a daughter of the marquis of Stafford, by whom he had a son, born in 1773. The countess died January 27th, 1824; and the earl, September 4th, 1825.

CARLOCK, in commerce, a sort of isinglass, made of the sturgeon's bladder, imported from Archangel. The chief use of it is for clarifying wine, but it is also used by the dyers. The best carlock comes from Astracan, where great numbers of the fish are caught.

CARLOS, ST., a city in the interior of the new Colombian province of Apure, situate on one of the branches of the Apure river, about eighty-five miles S. S. W. of Valencia. The inhabitants are principally descendants of settlers from the Canary Isles, who are more industrious and social than those from Old Spain. Under the newly formed government of Colombia, St. Carlos promises to become a flourishing place, being situate in a very fertile country, affording great inducements to agricultural enterprise. Population in 1826, about 10,000.

CARLOS DE MONTEREY, SAN, the principal settlement of New California, on the west coast manufacture has established itself upon an extended scale in this city, whilst the architectural and external appearances of the city have indicated great social improvement and national prosperity. The conveyance of its commodities of commerce has been facilitated by a canal to the Solway Frith, and it is a point of union and interchange for the mails to all parts of England, Scotland, and Ireland. Its corporation consists of a mayor, twelve aldermen, &c. It returns two members to parliament, and is 101 miles south-east of Glasgow, ninety-one south by east of Edinburgh, and 30 N. N. W. of London.

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CARLISLE, a town of Pennsylvania, capital of Cumberland county, with a college, and four edifices for public worship. It is situate near a creek of the Susquehannah, 100 miles west by north of Philadelphia.

CARLISLE BAY, on the south coast of Jamaica; west coast of Barbadoes, and island of Antigua.

CARLISLE (Frederic Howard), earl of, was born in May 1748, his mother being Isabella Byron, sister of Admiral Byron, whose life we have sketched. He was brought up at Eton with Mr. Fox; and finished his education at Christ Church, Oxford. In 1777 he was appointed treasurer of the royal household, and appointed in the following year one of the British commissioners to adjust the differences between the mother country and her then revolted American colonies: but the mission, it is well known, proved wholly abortive. In 1780 he was viceroy of Ireland. As a writer he is known by a tragedy called the Father's Revenge, which received the decided approbation of Dr. Johnson, the Stepmother, a tragedy, and some Poems. His nephew, Lord Byron, as we have shown, treated the poetical character of this nobleman with great contempt in his English Bards and Scotch Reviewers: but there was evidently more of private pique in the affair, than any steadiness of judgment. See BYRON. Lord Carlisle married a daughter of the marquis of Stafford, by whom he had a son, born in 1773. The countess died January 27th, 1824; and the earl, September 4th, 1825.

CARLOCK, in commerce, a sort of isinglass, made of the sturgeon's bladder, imported from Archangel. The chief use of it is for clarifying wine, but it is also used by the dyers. The best carlock comes from Astracan, where great numbers of the fish are caught.

CARLOS, ST., a city in the interior of the new Colombian province of Apure, situate on one of the branches of the Apure river, about eighty-five miles S. S. W. of Valencia. The inhabitants are principally descendants of settlers from the Canary Isles, who are more industrious and social than those from Old Spain. Under the newly formed government of Colombia, St. Carlos promises to become a flourishing place, being situate in a very fertile country, affording great inducements to agricultural enterprise. Population in 1826, about 10,000.

CARLOS DE MONTEREY, SAN, the principal settlement of New California, on the west coast

of North America, in the lat. of 36° 36′ N., and 121° 34′ of W. long. It is beautifully situated within a small bay of the same name, first discovered by Cabrillo in 1542, who named it Bahia de Pinos, on account of the graceful aspect of the forest of pines, intermixed with oaks, which covered the mountains of St. Lucia, rising with gentle ascent from the bay. It was afterwards visited by the Count de Monterey, from whom it received its present name. The Jesuits in their turn became enamoured with the spot, and formed a settlement here. The forests and mountains which rise immediately from the coast, preclude much intercourse with the interior; nor does it appear that there is any river of magnitude, either north or south, for some distance, otherwise it would be an inviting spot for colonisation.

CARLOW, anciently called Catherlogh, an interior county of the province of Leinster, in the south-east part of Ireland; it is bounded on the west by the Barrow River, which divides it from the county of Kilkenny, afterwards flowing past New Ross into Waterford harbour; on the east it is intersected by the Slaney River, which falls into Wexford Haven; a small portion of the county lies west of the Barrow, and the portion east of the Slaney borders on the county of Wicklow, and partakes of the mountainous character of that county, as does also the portion west of the Barrow, and the south-east part bordering on the county of Wexford; the part between the two rivers is beautifully undulated and exceedingly fertile, both in tillage and pasture, and produces the best butter in all Ireland. It contains inexhaustible quarries of excellent limestone, and beds of marl and clays, and in the mountains are iron ore and oxide of manganese. Carlow county contains 137,050 Irish plantation acres; is divided into six baronies and forty-six parishes. The only towns of note in the county, besides Carlow, the capital, are Tullow and Hacket's Town; in that part of the county west of the Barrow is the ecclesiastical see of Leighlin, now united to Ferns in the county of Wexford.

CARLOW, the chief and assize town of the preceding county, is situate on the east bank of the Barrow River, at the north-west extremity of the county, bordering on Queen's and Kildare counties. The remains of a castle overhanging the river, the ruins of a very fine abbey, a convent, and Roman Catholic college, are the principal objects of interest in the town. It has also a respectable market-house, county court-house, gaol, and cavalry barracks, and manufactures some woollen cloths. The castle is supposed to have been erected by king John of England, to secure the passage of the Barrow; it continued for several centuries a fortress of much importance. In the reign of Richard II. it was surprised by Donald M'Art O'Kavanagh, king of Leinster, and remained in his possession a considerable time. In 1577 the tower and castle surrendered, after a long and desperate siege, to Rory Oge O'Moore, who inflicted great cruelty on the inhabitants. In 1642, 500 Englishmen, imprisoned in the castle, were rescued by a detachment of the duke of Ormond's army; and in 1650 it surrendered to the parliamentary forces. In an effort since that time to renovate the building, the foundation gave way, and it has since remained a heap of ruins. On the 27th of May, 1798, the town was furiously assailed at two o'clock in the morning, by a large body of Irish, who, after a most sanguinary conflict, were routed by the English cavalry stationed in the barracks, aided by the yeomanry. Some coarse woollen cloth is manufactured in the town and its vicinity; some of the inhabitants carry on, by means of the Barrow, an extensive traffic in lime, and stone coal, obtained just within Queen's county. Carlow is one of the thirty-one places in Ireland each of which returned a member to the parliament of the United Kingdom. It is eighteen miles north-east of the city of Kilkenny, and thirty-nine south-west of Dublin.

CARLOWITZ, a town of Sclavonia, where a peace was concluded between the Turks and Germans in 1669. It is seated on the south bank of the Danube, just below Peterwarden, thirty-eight miles north-west of Belgrade. Population about 5600

CARLSBAD, a town of Bohemia, in the circle of Saatz, celebrated for its hot baths, discovered by the emperor Charles IV. as he was hunting. It is seated on the Topel, near its confluence with the Egra, twenty-four miles E. N. E. of Eger, and seventy south-east of Dresden. It is very celebrated for its mineral waters.

CARLSCRONA, or CARLSCROON, a sea-port of Sweden, in the province of Blekingen, on the Baltic. It is the residence of the governor of the province, and was founded by Charles IX; but, for its present rank as a sea-port, is indebted to Charles XI. It has long been the principal rendezvous of the Swedish navy. The harbour is commanded by two forts, and other fortifications; but the docks are the chief objects of interest. One of them, constructed in the year 1714, was excavated from the solid rock; its length is 190 feet, its breadth forty-six, and its depth thirty-three. The new semicircular dock is of greater dimensions; it is divided into four compartments, each of which has five slips for vessels, a gate forty-eight feet in width, and nearly thirty in height, and an edifice over it with a copper roof. The walls are of granite, and nearly forty feet thick, being filled up in the middle with earth. The harbour will hold altogether about 100 vessels. The Swedish admiralty had once its seat here, but removed to Stockholm in 1776. Here is an anchor foundry. The exports are timber, tar, potash, tallow, and marble. Population 13,800. It is 220 miles S. S. W. of Stockholm.

CARLSHRUE, a town in the northern part of the territory of the grand duke of Baden, and now the ducal residence. It was first laid out in 1715; the original plan included thirty-two streets, and a palace in the centre. It was taken possession of by the French in 1796, when only nine of the streets were built; nor was it of much note till after the final termination of the war in 1814: since which it has become the permanent residence of the grand duke. The palace is a spacious and elegant edifice, the centre surmounted with a lofty spire; on one side is a chapel, and on the other a library, containing 40,000 volumes of valuable books, and a collection of minerals and medals. A philosophical apparatus, and an extensive botanic garden, adjoins the palace. Carlshrue has churches for the Lutherans, Calvinists, and Catholics; and also a Jews' synagogue; all religionists being on equal terms in the Baden territory. The other public buildings are a town hall, courts, an academy, poor-houses, and barracks; and most of the buildings, private as well as public, being of stone, the whole make a respectable, and rather an imposing appearance. The chief dependence of the inhabitants is on the court, and public business of the dukedom, and foreign embassies. The population has been progressively increasing since 1810, and in 1825 amounted to 16,030. It is about forty miles north by east of Strasburgh, and about the same distance west by north of Stutgard.

CARLSTADT, a town of Franconia, in the principality of Wurtzburg, seated on the Maine, thirteen miles north by west of Wurtzburg. It is now included in the Bavarian circle of the Lower Maine. Population about 2200.

Carlstadt, the capital of Croatia, with a fortress; seated on the Kulpa, a branch of the Save, at the influx of the Corona, 180 miles south by west of Vienna, and forty-five E. N. E. of Fiume.

Carlstadt, a town of Sweden, capital of Wermeland, and a bishop's see. It stands on the north side of the lake Wenner, and on the island of Tingwalla, which is formed by two branches of the Clara. The houses are built of wood and painted; the episcopal palace is also of wood, and has an extensive front. The inhabitants carry on a trade in copper, iron, and wood, across the lake. It is 155 miles west of Stockholm. Population about 1500.

CARLYLE (Joseph Dacres), an English divine, famous for his oriental learning, was born at Carlisle in 1759, where his father practised physic with considerable reputation. After receiving the usual course of grammar-school education in Carlisle, he was removed to Christ's College, Cambridge; and having resided about two years there, he was admitted of Queen's College, and obtained a fellowship. He now began to study the Arabic language, in which he made uncommon progress; and, with the assistance of David Zabio, an Asiatic, born at Bagdad, then residing at Cambridge, he entered on the study of the other oriental tongues. Having continued about ten years in college, during which he proceeded to his degree of B. D., he married and settled at Carlisle. He was chosen professor of Arabic on the resignation of Dr. Craven in 1794; and collated to the chancellorship of Carlisle in 1795. In 1796 he published Specimens of Arabian Poetry, with elegant translations, and brief memoirs of the authors. In 1799 he accompanied lord Elgin in his embassy to Constantinople; where he gained admittance to the libraries, and made catalogues of the works they contained; and from whence he made excursions into Asia Minor, and explored, with interesting accuracy, the site of ancient Troy. Having visited Egypt, Syria, and the Holy Land, gleaning literary treasures wherever he went, he returned to Constantinople, from whence he travelled through Italy and Germany to England, where he landed in the end of 1801. The bishop of Carlisle soon after presented him to the rich rectory of Newcastle upon Tyne; but his travels had injured his constitution, and this worthy and ingenious man died at Newcastle in 1804. About the time of his death he was engaged in superintending an edition of the Arabic Bible; a Dissertation on the Troad; and Observations made during his Tour in the East.

CARMAGNOLA, a fortified town of Italy, in Piedmont. It was taken by the French, and retaken by Prince Eugene in 1691. It is seated in a country abounding in corn, flax, and silk, near the Po. Here is an annual fair, which is much frequented from Savoy and Dauphiné. Early in the revolution it fell into the hands of the French, and gave its name to one of the most popular republican songs. Population about 12,000. It is twelve miles S. S. E. of Turin.

CARMANIA, in ancient geography, a country of Asia, east of Persia, having Parthia on the north, Gedrosia on the east, the Persian Gulf, and the Indian, or the Carmanian, Sea on the south. Its name was derived from the Syriac, carma, a vine, for which it was famous, yielding clusters of grapes three feet long. It is now called Kerman, or Carimania, and is a province of modern Persia. It was anciently divided into Carmania Deserta, south of Parthia; and, Carmania Propria, south of Carmania Deserta, quite to the sea.

CAERMARTHEN, or Carmarthen, the chief town in the county of Caermarthen, South Wales, situated at the distance of 218 miles west of London. It is also a borough containing a population of 9995 souls, holds markets every Wednesday and Saturday, and fairs on the 3rd and 4th of June, 10th of July, 12th of August, 9th of October, and 14th of November. The chancery and exchequer for South Wales were established here, and here the ancient Britons held their patriarchal synods. — The present town occupies a commanding position on the northern bank of the river Towy, which is crossed by a bridge of seven arches; and the bay of Caermarthen into which the river falls, is included between Caldy Island and the Worm's Head, distant from each other just fourteen miles.—Henry VIII. granted the inhabitants the privilege of being represented in parliament. The corporation consists of a mayor, recorder, town clerk, six peers, and two sheriffs, the last being the returning officers at the elections for appointing a burgess to parliament. The great sessions for the county are held here, as well as a mayor's court, and quarter sessions alternately, with Llandilo. The trade consists principally in the manufacture and export of tin, coal, and iron, and an extensive and improving traffic is established between this town and Bristol. The Towy is navigable up to the town by vessels of 300 tons burden; and the quay is spacious and convenient. Amongst its public buildings the most important are the church of St. Peter, a chapel of ease, besides meeting houses, the county gaol, town hall, &c.

Caermarthen boasts the possession of several literary societies, and two public journals issue from its press. A handsome monument to the memory of the gallant Sir Thomas Picton stands near the town; and that remarkable person Merddyn, or Merlin, the prophet, was born here. He flourished, A. D. 480, and has left the name of Caer-merddyn (Caermarthen) i. e. the city of Merlin, to fix the place of his nativity.—The duke of Leeds takes the title of marquis from this place.

CAERMARTHENSHIRE, one of the six counties comprehended within South Wales. It was anciently called Dimetia, and is bounded on the north by Cardiganshire, on the east by Brecon, on the west by Pembroke, and the south by Glamorganshire and the Bristol channel. The surface presents considerable variety, undulating generally, sometimes very hilly, and, occasionally, even swelling into mountains. The area covers 590,640 acres, which sustain a population of 100,800. It is separated into eight hundreds, viz.: Carnwallon, Cathinog, Caeo, Derllys, Elvet, Iskennen, Cidwelly, and Perfedd. In these are the market towns of Caermarthen, the capital, Llandovery, Cidwelly, Llandeilo fawr, Llanelly, Newcastle-in-Emlyn, and Llangadoc. There are eighty-seven parishes within the shire, all under the control of the diocese of St. Davids. Tin plates and woollen stockings are amongst the manufactures, the latter disposed of in every market town, the former shipped principally at Llanelly. Many British and Roman antiquities are scattered over the face of the county, and some few places are consecrated to history and poetry. Grongar hill possesses a classical notoriety, and Llandeilo fawr witnessed the fall of Cambrian independence in the final struggle between Llewellyn and King Edward I., of England. An ancient Roman road is still distinct near to Llandovery, and many coins of that victorious people have been found in the vicinity of Whitland and elsewhere. Llanegwad parish abounds in antique remains, both Roman and British, and to the north of the town of Caermarthen stands a remarkable cairn, 150 feet in circumference, and eighteen in height, enclosing a stone chest nine feet in length, the lid of which is entire. Other cairns of less magnitude, but containing sepulchral remains, have also been met with in other places in this county. Caermarthen borough sends one member to parliament, and a second is returned by the county.

CARMEL, a high mountain of Palestine, standing on the skirts of the sea, and forming the most remarkable head-land on all that coast. It extends east as far as the plain of Jezreel, and from the city of that name quite to Cæsarea on the south. It seems to have had the name of Carmel from its great fertility; this word, in Hebrew, signifying the vine of God, and being used in Scripture to denote any useful spot. Carmel has been greatly revered both by Jews and Christians, from its having been the residence of the prophet Elijah, who is supposed to have lived there in a cave (which is there shown) before he was taken up into heaven.

CARMELITES, one of the four tribes of mendicant friars; so named from mount Carmel. They pretend to descend in an uninterrupted succession from Elijah, Elisha, and the sons of the prophets. Phocas, a Greek monk, speaks the most reasonably. He says that in his time, 1185, Elias's cave was still extant on the mountain; near which were the remains of a building, which intimated that there had been anciently a monastery; that some years before, an old monk, a priest of Calabria, by revelation, as he pretended, from the prophet Elias, fixed there, and assembled ten brothers. In 1209 Albert, patriarch of Jerusalem, gave the solitaries a rigid rule, which Papebroch has since printed. This rule contained sixteen articles. These confined them to their cells; enjoined them to continue day and night in prayer; prohibited their having any property; enjoined fasting from the feast of the holy cross till Easter, except on Sundays; abstinence at all times from flesh; obliged them to manual labor; imposed a strict silence on them from vespers till the tierce the next day. After the establishment of the Carmelites in Europe, their rule was in some respects altered; the first time, by pope Innocent IV., who added to the first article a precept of chastity, and relaxed the eleventh, which enjoins abstinence at all times from flesh, permitting them, when they travelled, to eat boiled flesh. The rule was again mitigated by the popes Eugenius IV., and Pius II. The habit of the Carmelites was at first white, and the cloak laced at the bottom with several lists. But Pope Honorius IV. commanded them to change it for that of the Minims. Their scapulary is a small woolen habit of a brown color, thrown over their shoulders. They wear no linen shirts; but instead of them linsey wolsey, which they change twice a week in the summer and once a week in the winter.

CARMEN, an ancient term among the Latins, used in various senses; as 1. a verse: 2. a spell, charm, form of expiation or execration, couched in few words, in a mystic order, on which its efficacy depended.

CARMENTA, or Carmetis, in fabulous history, a prophetess of Arcadia, and the mother of Evander, with whom she came into Italy sixty years before the Trojan war.

CARMINATIVES comprehend coriander-seeds, aniseed, peppermint, and the like medicines, used in colics, or other flatulent disorders, to dispel wind. The word comes from the Latin carmen, a charm; and is supposed to have been a general name for all medicines which operated, like charms, in an extraordinary manner. Hence, as the most violent pains frequently arose from wind, and immediately ceased upon its dispersion, the term carminative was applied to medicines which gave relief in windy cases, as if they cured by enchantment. It is now almost obsolete.

CARMINE, a powder, of a very beautiful red color, partaking of the shades of scarlet and purple. It is used by painters in miniature; but, on account of its high price, they are often induced to substitute lake. The manner of producing it is preserved a secret by color-makers; and, though many receipts have been published, none has ever been found to answer the purpose. See Painting.

CAR'NAGE, *n.*
Car'nal, *adj.*
Car'nalist, *n.*
Car'nalite, *n.*
Carnal'ity, *n.*
Car'nalize, *v.*
Car'nally, *adj.*
Car'nalness, *n.*
Car'nal-minded, *adj.*
Car'nal-mindedness, *n.*

This whole class of words descends from Lat. *caro, carnis*, flesh. Carnage means slaughter; massacre; and also, poetically, heaps of flesh. Carnal, and the words formed from it, denote belonging to the flesh; addicted to fleshly practices; unspiritual; sensual; gross; and in their worst sense, libidinous, lustful, lecherous. A carnalite is a worldly-minded man; a carnalist seems to be some shades darker in character; to carnalise is to degrade the mind by employing it in ministering only to the lusts of the flesh; reducing it to that state in which, as Milton beautifully expresses it,

> The soul grows clotted by contagion,
> Imbodies and imbrutes, till she quite lose
> The divine property of her first being.

> For to be *carnally-minded* is death; but to be spiritually minded is life and peace. Because the *carnal* mind is enmity against God: for it is not subject to the law of God, neither indeed can be.
> *Romans* viii. 7.

> So as fortune wold that was Isopes frend,
> This worthy king that same yere made his *carnal* end.
> *Chaucer. Cant. Tales.*

CARNARVON, a town in the parish of Llanbeblig, hundred of Is-gorfai, and county of Caernarvon, in North Wales. It is a borough town, the capital of the county, and of the northern principality, and is beautifully situated at the confluence of the river Seiont with the straits of Menai. Here are held the great and quarter sessions. Markets on Wednesdays and Saturdays, and five fairs in each year. It lies 235 miles north-west by west of London. The population is estimatedat 5,788. The public buildings are not architectural although convenient. The hotel is a handsome design, and the English chapel appropriate, but the county court, market house, gaol, and custom house, have only the excellence of their accommodation to recommend them. The guild, or town hall, is a handsome apartment occupying the ancient flanking towers of the principal gate. It was restored and decorated at the expense of Sir Watkyn Williams Wynne, bart. Three excellent and spacious inns are provided for the accommodation of visiters, exclusive of several comfortable houses of less pretensions. The domestic or country trade of this town is considerable, but its prosperity and wealth are attributable to the large exports of slate made annually from the quays. The metal of Cylgwyn and Llanllyffni quarries is superior to the smooth pink slate exported from other places, a circumstance seldom known beyond the vicinity of the slate country. Ships are repaired here, and vessels occasionally built, a trade much promoted by the advantage of a patent slip. The noble castle of Caernarvon, the birth place of Edward II. is the most spacious and elegant of the first Edward's military structures, being intended for the residence of the royal family. It appears as a figure-head of the harp-like form into which the ancient walls are disposed, a design artfully adopted, like the accouchement of Queen Eleanor in Caernarvon castle, to soothe and win over his lately conquered subjects. Caernarvon is governed by a mayor, who is constable of the castle, by patent, one alderman, and two bailiffs, &c., and, in conjunction with Pwllheli and other ancient places, returns one member to parliament. Near the site of King Edward's fortifications stood the ancient Roman Segontium, some small remains of which still exist, a Roman road may also be traced, and several camps or stations are yet quite perfect at small distances around. *Plas Mawr*, within the walls, a mansion belonging to one of the earliest Saxon settlers walls, may be classed amongst the antiquities. The Herbert family take the title of earl from this ancient town.

CARNARVONSHIRE, a county of North Wales. It is bounded by the sea on the north, by Denbighshire on the east, by Merionethshire and the sea on the south, and on the west by the Menai straits and the Irish Sea. It extends forty five miles in length, but varies exceedingly in breadth, and occupies an area of 260,000 acres of land. It is divided into ten hundreds, viz.: Commitmaen, Creuddyn, Dinllaen, Effionydd, Gafflogian, Isaf, Is-gorfai, Nant-Conway, Uchaf, Uwch-gorfai, and the separate jurisdiction of Bangor city. It includes the market towns of Caernarvon, Pwllheli, and Nevin, and embraces seventy-one parishes, subject to the control of the bishop of Bangor. The population is estimated at 66,500. This is one of the most mountainous and romantic districts in the United Kingdom, and here the great chain of mountains, which appears to rise from the sea at Penmaen-mawr and the Rifaels, attains its maximum height, 3759 feet in the summit of Snowdon, the loftiest of the Cambrian Alps. The general composition of the Caernarvonshire hills is clay slate, including copper and lead ores, the principal mines of which are situated at Llanberis, Nantle-pooles, and Beddgelert, besides pure slate at Llandegai, Llanberis, Llanllyffni, and other places. In the export of slates, ores, light cattle, and some woollen, the chief trade consists, and the accommodation of tourists forms a profitable occupation to numbers. Many rivers and rivulets descend from the mountains, and either proceed with short courses to the sea or meander into the adjoining counties. The Conway is the most important, and perhaps the next in magnitude are the Ogwen, Llugwy, Lleder, Seiont, and Coluryn. Lakes are also numerous, almost every hollow amongst the hills constitutes a draining reservoir of an extensive district. Llanberis and Nantgwynant lakes are celebrated for the sublimity of the accompanying scenery, to which may be added, as not inferior in grandeur, Llyn Idwal, Ogwren, and Crafnant. Strangers have been admitted to an inspection of the wildest districts of this county by the construction of excellent roads through Llanberis and Nant Francon, and a free intercourse is opened with Anglesea by the erection of the Menai suspension bridge. The remains of antiquity are various and many. The of the harp-like form into which the ancient walls are disposed, a design artfully adopted, like the accouchement of Queen Eleanor in Caernarvon castle, to soothe and win over his lately conquered subjects. Caernarvon is governed by a mayor, who is constable of the castle, by patent, one alderman, and two bailiffs, &c., and, in conjunction with Pwllheli and other ancient places, returns one member to parliament. Near the site of King Edward's fortifications stood the ancient Roman Segontium, some small remains of which still exist, a Roman road may also be traced, and several camps or stations are yet quite perfect at small distances around. Plas *Mawr*, within the walls, a mansion belonging to one of the earliest Saxon settlers walls, may be classed amongst the antiquities. The Herbert family take the title of earl from this ancient town.

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Cairn, Cromlech, and Roman camp are still distinguishable. Ancient British castles remain at Dolwydellan, Nant Francon, Criccieth, and Dolbadarn, while the noble ruins of Caernarvon and Conway castles evince the power and resources of the English prince by whom Cambria was finally subdued.

CARNATIC, a territory of Hindostan, extending along the east coast from Cape Comorin, the southern extremity of Asia, in 8° 4′ N. lat. to near the mouth of the Kistna in 16° N. lat. varying in breadth from fifty to 100 miles, bounded on the west by the Mysore, and on the east for about two degrees of latitude, by the gulf of Manara and Palk's Strait, which divides it from the north end of the island of Ceylon, the remainder of its eastern boundary being better known by the name of the coast of Coromandel. The principal towns on the coast, beginning from the south, are Negapatam, Pondicherry, Madras, Pullicat, and Gangapatam; and those in the interior, beginning also from the south, are Tinevelly, Madura, Tritchinopoly, Tanjore, Arcot, Nellore, and Ongole. Numerous streams and rivers from the westward intersect this territory, the principal of which are the Cauvery, Cuddalore, Paliare, and Pennar. The soil is various in quality, being in some places exceedingly fertile, and in others sandy and barren; and the inhabitants occasionally exposed to great privation for want of water. Numerous fortresses, and monuments of art, are spread over every part of this territory, indicating long continued civilisation and opulence, more so than in most other parts of Hindostan. The Carnatic was formerly the dominion of the nabob of Arcot, who became one of the earliest and apparently most faithful allies of the British in their career of conquest in the east. The nabob of Arcot's dominions were guaranteed to him, on condition of paying a subsidy of fifteen lacks of pagodas annually, afterwards reduced to nine lacks, and further not to enter into alliance with any European or other power, without the consent of the British. But, on the surrender of Seringapatam to the British in 1800, there was found, among the records of the sultan, papers confirmatory of the secret violation of the treaty of the nabob of Arcot with the British, who consequently dispossessed the nabob of his authority, and since 1801 the Carnatic has been uninterruptedly possessed by the British, and included in the presidency of MADRAS, which see.

CARNA'TION, *n.s.* } Fr. *incarnadin*; Ital.
CARNA'TIONED, *adj.* } *incarnatino*, *incarnato*; Span. *encarnado*; Lat. *caro*, *carnis*. The natural flesh color; the name of a flower. The adjective denotes colored like the flower. When the flesh is well executed, and has the natural tint, painters say, 'the carnation is very good.'

And lo the wretch! whose vile, whose insect lust
Laid this gay daughter of the spring in dust:
O punish him! or to the Elysian shades
Dismiss my soul, where no *carnation* fades. *Pope.*

While the hues of youth,
Carnationed like a sleeping infant's cheek,
Rocked by the beating of her mother's heart,
Or the rose tints that summer twilight leaves
Upon the lofty glacier's virgin snow,
The blush of earth embracing with her heaven,
Tinge thy celestial aspect, and make tame
The beauties of the sun-bow which bends o'er thee.
Byron's Manfred.

CARNATION, in botany. See DIANTHUS.

CARNATION, among painters, is understood of all the parts of a picture, in general, which represent flesh, or which are naked and without drapery. Titian and Corregio in Italy, and Rubens and Vandyke in Flanders, excelled in carnations. In coloring for flesh, there is so great a variety, that it is hard to lay down any general rules for instruction therein; neither are there any regarded by those who have acquired a skill this way. The various coloring for carnations may be easily produced, by taking more or less red, blue, yellow, or bistre, whether for the first coloring, or for the finishing: the color for women should be bluish; for children a little red, both fresh and gay; and for the men it should incline to yellow, especially if they are old.

CARNATION, SPANISH. See POINÇIANA.

CARNATION TREE. See CACALIA.

CARNEADES, a celebrated Greek philosopher, born at Cyrene in Africa, and founder of the third academy. He was an antagonist of the Stoics; and applied himself with great eagerness to refute the works of Chrysippus, one of the most celebrated philosophers of their sect. The power of his eloquence was dreaded even by the Roman senate. The Athenians being condemned by the Romans to pay a fine of 500 talents for plundering the city of Oropus, sent Carneades, Diogenes, and Critolaus, to Rome, as ambassadors, who got it mitigated to 100 talents. Before they had an audience of the senate, they harangued to great multitudes, in different parts of the city. Carneades excelled in the vehement, and rapid Critolaus in the correct and elegant, and Diogenes in the simple and modest kind of eloquence. The former having one day harangued before Galba, and Cato the censor with great variety of thought, and copiousness of diction, in praise of justice, undertook the next day, with a view of establishing the doctrine of the uncertainty of human knowledge, to refute all his former arguments. Cato moved, that these ambassadors should be immediately sent back, as it was very difficult to discern the truth through the arguments of Carneades. He was afraid of that subtlety of wit, with which Carneades maintained either side of a question. His grand principle was, that there are only resemblances of truth in the mind of man; so that of two things directly opposite, either may be chosen indifferently. Quintilian remarks, that though Carneades argued in favor of injustice, yet he himself acted according to the strictest rules of justice. Carneades lived to be eighty-five years old; some say ninety: his death is placed in the fourth year of the 162d Olympiad.

CARNEDDE, in British antiquity, heaps of stones, supposed to be druidical remains, and thrown together at confirming a covenant. Gen. xxxi. 46. They are very common in the isle of Anglesey.

CARNEIA, in antiquity, a festival in honor of Apollo, surnamed Carneus, held in most cities of Greece, but especially at Sparta, where it was first instituted. The reason of the name, as well as the occasion of the institution, is controverted. It lasted nine days, beginning on the thirteenth day of the month Carneus. The ceremonies were an imitation of the method of living and discipline used in camps.

CARNEL; the building of ships, first with their timber and beams, and after bringing on their planks, is called carnel work, to distinguish it from clinch work. Vessels also, which go with mizen sails instead of main sails, are by some called carnels.

CARNELIAN, or CORNELION, in natural history, a sub-species of calcedony, of which there are three kinds, distinguished by three colors, a red, a yellow, and a white. The red is very well known among us; is found in roundish or oval masses, like our common pebbles, and is generally met with between one inch and two or three inches in diameter: it is of a fine, compact, and close texture; of a glossy surface; and of all the degrees of red, from the palest flesh color to the deepest blood red. It has a conchoidal fracture, and a specific gravity of 2·6. It is semitransparent, and has a glistening lustre. It consists of 94 silica, 3·5 alumina, and 0·75 oxide of iron. It is generally free from spots, clouds, or variegations; but sometimes it is veined very beautifully with an extremely pale red, or with white; the veins forming concentric circles, or other less regular figures, about a nucleus, in the manner of those of agates. The pieces of carnelian which are all of one color, and perfectly free from veins, are those which our jewellers generally make use of for seals, though the variegated ones are much more beautiful. For this purpose it is excellently adapted, being not too hard for cutting, and yet hard enough not to be liable to accidents, to take a good polish, and to separate easily from the wax. It is not at all affected by acid menstruums: the fire divests it of a part of its color, and leaves it of a pale red; but a strong and long continued heat will reduce it to a pale dirty gray. The finest carnelians are those of the East Indies; but there are very beautiful ones found in the rivers of Silesia and Bohemia; and we have some good ones in Britain.

CARNESVILLE. See FRANKFORT.

CARNEW, a parish and town of Ireland; the parish is partly in the county of Wicklow, and partly in Wexford, and in 1821 contained a population of 5328. The town is in the county of Wicklow forty-four miles S.S.W. of Dublin, and sixteen north of Enniscorthy, and in 1821 contained 855 inhabitants; it has some manufactures of coarse woollens. It is distinguished for the defeat of the king's troops by the insurgents in 1798.

CARNHAWL, a town of Hindostan, in the province of Delhi. Here, in 1739, Kouli Khan gained a victory over the army of the great mogul; and in 1761 the Seiks, under Abdalla, defeated the Mahrattas. It is seated at the junction of the Hissar canal with the Jumna. It is eighty miles north-west of Delhi.

CARNIFEX, among the Romans, the common executioner. By reason of the odiousness of his office, he was expressly prohibited from having his dwelling house within the city. In middle age writers, carnifex denotes a butcher. Under the Anglo-Danish kings, the carnifex was an officer of great dignity; being ranked with the archbishop of York, earl Goodwin, and the lord steward. Flor. Wigorn. Anno. 1040. The public executioner was also an office of dignity under the kings of Israel.

CA'RNIFY, *v.*
CARNIFICA'TION, *n.*
CARNI'VOROUS, *adj.*
CARNO'SITY, *n.*
CA'RNOUS, *adj.*
CA'RNEOUS, *adj.*

All from Lat. *caro, carnis.* To carnify is to generate flesh; to convert nutriment into flesh; carnificating is the action of so generating or converting. Carnivorous is flesh-eating; carnosity is a fleshy excrescence; and carnous and carneous are fleshy.

At the same time, I think, I deliberate, I purpose, I command; in inferior faculties, I walk, I see, I hear, I digest, I sanguify, I *carnify*.
Hale. Origin of Mankind.

The first or outward part is a thick and *carnous* covering, like that of a walnut; the second, a dry and flosculous coat, commonly called mace.
Browne's Vulgar Errours.

In a calf, the umbilical vessels terminate in certain bodies, divided into a multitude of *carneous* papillæ.
Ray.

The muscle whereby he is enabled to draw himself together, the anatomists describe to be a distinct *carnous* muscle, extended to the ear. *Id.*

In birds there is no mastication or comminution of the meat in the mouth; but, in such as are not *carnivorous*, it is immediately swallowed into the crop or craw. *Id.*

By this method, and by this course of diet, with sudorificks, the ulcers are healed, and that *carnosity* resolved. *Wiseman.*

Man is by his frame, as well as by his appetite, a *carnivorous* animal. *Arbuthnot.*

But man is a *carnivorous* production,
And must have meals, at least one meal a day;
He cannot live like woodcocks upon suction,
But, like the shark and tiger, must have prey.
Byron's Don Juan.

CARNIOLA, a ducny of Germany, anciently Carnia, from the Carni, a tribe of Scythians, is bounded on the south by the Adriatic Sea, and part of Istria; on the north by Carinthia and Stiria; on the east by Sclavonia and Croatia; on the west by Friuli, the county of Gorz or Goritz, and a part of the Gulf of Venice; extending in length about 110 miles, and in breadth about fifty. It is very mountainous: some of its hilly parts being cultivated and inhabited, others covered with wood, and others buried in perpetual snow. The valleys are remarkably fruitful. Here are also mines of iron, lead, and copper; but salt is an imperial monopoly. It contains many medicinal springs and inland lakes. The common people are very hardy, going barefooted in winter through the snow, with open breasts, and sleeping on a hard bench, without bed or bolster. Their food is also very coarse and mean. In winter, when the snow

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CA'RNIVAL, *n.* Fr. *carnaval*; Ital. *carnevale.* A popish feast before Lent; a time of luxury See the next article.

The whole year is but one mad *carnival*, and we are voluptuous not so much upon desire and appetite, as by way of exploit and bravery.
Decay of Piety.

O great man-eater!
Whose every day is *carnival*, not sated yet?
Unheard of epicure! without a fellow!
Blair's Grave.

CARNIVAL, or CARNAVAL, was formerly observed with great solemnity by the Italians, particularly at Rome and Venice, from the twelfth day till Lent. Mr. Du Cange derives the word from Carn a-val, by reason the flesh then goes to pot, to make amends for the season of abstinence next ensuing. Accordingly in the corrupt Latin, he observes, it was called carnelevamen, and carnisprivium; as the Spaniards still denominate it carnes tollendas. Feasts, balls, operas, concerts of music, marriages, intrigues, &c. are chiefly held in carnival times. It begins at Venice the second holiday in Christmas. Lady Morgan gives the following lively picture of the carnival at Rome in 1820:—

'To the ceremonies and festivities of Christmas succeeds the carnival: that season of enjoyment over which concience holds no jurisdiction, and care no sway.

'On the first day of the Corso few of the regular forces are assembled; but all Rome is already a masquerade rehearsal. Old women are patching harlequin's jackets before their doors. Young ones assume the innocent waxen-faced mask, white trowsers, and shirt hanging loosely over every thing, with its sleeves tied with colored ribbons—the common disguise of all those who can afford no other. Already they try the point of their yet unexercised wit, and 'intriguent' and 'danno guai,' (i. e. tease and torment) all who pass on foot or in carriages; but more especially the forestieri, who are usually taken for English. Children are every where busy making or tying on their paper masks, and girding their wooden swords. At the sound of the cannon, which fired from the Piazza di Venezia, each day announce the commencement of the amusements, shops are closed, palaces deserted, and the Corso's long and narrow defile teems with nearly the whole of the Roman population. The scene then exhibited is truly singular; and for the first day or two infinitely amusing. The whole length of the street, from the Porta del Popolo to the foot of the Capitol, a distance of considerably more than a mile, is patrolled by troops of cavalry, the windows and balconies are crowded from the first to the sixth story by spectators and actors, who from time to time descend, and take their place and parts in the procession of carriages, or among the maskers on foot. Here and there the monk's crown and cardinal's red skull-cap are seen peeping among heads not more fantastic than their own. The chairs and scaffolding along the sides of the street are filled to crushing with maskers, and countryfolk in their gala dresses (by far the most grotesque that the Carnival produces). The centre of the Corso is occupied by the carriages of princes, potentates, the ambassadors of all nations, and the municipality of Rome; and two lines of carriages, moving in opposite directions on each side, are filled by English peers, Irish commoners, Polish counts, Spanish grandees, German barons, Scotch lairds, and French marquises; but above all, by the hired jobs of the badauds and pizzicaroli of Rome. These form not the least curious and interesting part of the procession, and best represent the Carnival, as it existed a century back. In an open carriage sits, bolt upright, la signora padrona, or mistress of the family, nearly the whole of her beautiful bust exposed, or only covered by rows of coral, pearl, or false gems: her white satin robe and gaudy head-dress left to 'the pitiless pelting of the storm,' showered indiscriminately from all the houses and by the pedestrians on the occupants of carriages, in the form of sugar-plums, but in substance of plaster of paris or lime. Opposite to her, sits her caro sposo, the model of all those cari sposi, of whom Jerry Sneak is the abstract and type. He, good man is dressed as a grand sultan or Muscovite czar his hands meekly folded, his eyes blinded with lime, and his face unmasked, to show that it is to him belongs the gay set-out, the handsome wife, the golden turban, and crimson caftan. The cavalier pagante, if there is one in the family, or the favorite Abate, if there is not, occupies the place next the lady, snugly hidden under the popular dress of Pierrot or Pagliaccio; while all the little signorini of the family, male and female, habited as harlequins, columbines, and kings and queens, are stuffed in without mercy. Even the coachman is supplied with a dress, and straddles over the box as an elderly lady, or an Arcadian shepherdess; and the footman (or the shop 'prentice, or the scrocone, who assumes his place behind the carriage) takes the guise of an English miss, or a French court lady; and figures in a spencer and short petticoat, with an occasional 'god-dam;' or, accoutred with an hoop and a fan, salutes the passers-by with 'Buon giour, Messieurs.'

'The carriages of a few of the princes, of the governor of Rome, and of Monsieur Blacas, the French ambassador, were conspicuous for their gaudy splendor; while the morris-dancers of Europe, the most thinking people of England, always foremost in the career of amusement, made more noise, occasioned more bustle, and threw more lime, than all the rest of the population put together.

'At the Ave Maria, or fall of day, the cannon again fire as a signal to clear the street for the horse-course. All noise then ceases; the carriages file off by the nearest avenue, their owners scramble to their windows, balconies, chairs, or scaffolds; while the pedestrians, that have no such resources, driven by the soldiery from the open street, are crowded on the footways to suffocation. But no terror, no discipline, can restrain their ardor to see the first starting of the horses; and lives, constantly risked, are frequently lost in this childish eagerness for a childish amusement.

'A temporary barrier, erected near the Porta del Popolo, is the point from which the race commences: another on the Piazza di Venezia is the termination of the course. The horses are small, and of little value. They have no rider, but are placed each in a stall behind a rope, which is dropped as soon as the moment for starting arrives; when the animals seldom require to be put in motion by force. A number of tin foil and paper flags are stuck over their haunches, small pointed bodies are placed to operate as a spur; and the noise and the pain of these decorations serve to put the horse on his full speed, to which it is further urged by the shouting of the populace. At the sound of the trumpet (the signal for starting), even at the approach of the officer who gives the order, the animals exhibit their impatience to be off; and they continue their race, or rather their flight, amidst the screams, plaudits, and vivats of the people of all ranks. This scene forms the last act of each day's spectacle; when every one is obliged to quit his Carnival habit; for it is only on one or two particular evenings that there is a masked ball at the Alberti Palace.'

Carnosity is used by some authors for a little tubercle or wen, formed in the urethra, the neck of the bladder, or yard, which stops the passage of the urine. Carnosities are very difficult of cure: they are not easily known but by introducing a probe into the passage, which there meets with resistance. They usually arise from some ill managed venereal malady.

CARNOT (L. N.), a distinguished revolutionist of France, was born in Burgundy, and entered the corps of engineers while very young. At the beginning of the revolution he was a knight of the order of St. Louis, and a deputy to the national convention. He became a member of the committee of public safety, in the days of Robespierre, Barrere, Couthon, and St. Just, and had the chief direction of military affairs. When, on the fall of Robespierre, the convention arrested the other members of the committee, he insisted on sharing their fate. From 1795 to 1797 he was one of the five members of the directory, but being charged in the latter year with a royalist conspiracy, though he was through life, perhaps, the steadiest of modern republicans, he was sentenced to banishment from France, and Buonaparte, on becoming first consul, recalled him, and made him minister of the war department. He voted against the establishment of the imperial government, but this piece of political honesty his master never resented, and afterwards appointed him chief inspector of reviews. On his retiring, he received a pension of 20,000 francs. After the campaign in Russia, he wrote a noble letter to the now falling emperor of France, offering his services to his country, and was made governor of Antwerp. During the Hundred Days Carnot was the minister of the interior, and displayed his previous probity and honor. In June 1815 he was a leading member of the provisional government, and heartily, but vainly, endeavoured to prevent the re-establishment of monarchy in France, from which he finally retired at that period, and died in 1823, in exile. Buonaparte, it is said, spoke slightingly of his military opinions; but he was certainly a superior military mathematician. His works are, Reflexions sur la Metaphysique du Calcul Infinitesimal, 1797, 8vo. De la Correlation des Figures de Geometrie, 1801, 8vo; La Geometrie de Position, 1803, 4to; Memoire sur la Relation qui existe entre les Distances respectives de cinq Points quelconques pris dans l' Espace, suivi d'un Essai sur les Transversales, 1806, 4to. He also wrote On the Defence of Fortified Places.

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CA'ROB, *s.* Ar. *karob*, *garoba*; Syr. *charouba*; Mod. Gr. *καρaβολος*, Span. *carobo*; Ital. *carruba*; Fr. *carroube*. A tree bearing large pods, called St. John's breed, or locust. See Ceratomia.

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CAROCHA, a name which the Spaniards and Portuguese give to a mitre made of pasteboard, on which are painted flames and figures of demons, worn by those who are condemned to death by the infernal tribunal of the inquisition.

CARO'CHE, *s.* } Fr. *carosse*; Ital. *carrozza*;
CARO'CHED, *adj.* } Lat. *caruca*; καρυχιον.
A coach; a pleasure carriage. Minsheu says, a great coach. The word is frequent in our old writers, but is now obsolete. Mr. Todd thinks, that the modern unauthorised term barouch, may have been introduced by some learned charioteer, with a retrospective view to caroche.'

CAROENON, in antiquity, καροινον, or Carenum, names given by the Greeks and Romans to wine boiled over a slow fire, till only a half, third, or fourth part remained, and then mixed with honey or spices. Wine thus improved acquired several other names, such as mustum, mulsum, sapa, defrutum, &c. At this time the same operation is performed with respect to sack, Spanish, Hungarian, and Italian wines. In Italy, new wine which has been thus boiled, is put into flasks, and used for sallad and sauces. In Naples it is called musto collo, but in Florence it still retains the name of sapa. Plin. l. xxii. c. 2. Columella, de re rustica, l. xii. c. 20.

CA'ROL, *v.* & *n.* } Fr. *carolle*; Ital. *carola*;
CA'ROLING, *n.* } Lat. *choraula*. There is no lack of imputed parents for this word. Somner thinks it probable, though it is not easy to see the probability, that the words κυριε ἐλέησον, may have been corrupted into *kyrielle*, whence carol. Menage, somewhat more feasibly, gives *choreola*, a diminutive of *chorea*. Skinner supposes it to be derived 'à Fr. Gall. *carolle*; genus saltûs modulati; item canticum quoddam festivum, præsertim festo natalis usitatum: forte à Gr. χαρα, *gaudium*, χαιρω, *gaudeo*.' Cleland fetches it from the Celtic, *car*, or *cir*, a circle; because it is a song sung in a round; while Minsheu derives it 'of singing, rola, rola, that is bearing the burden of the song, as they tearme it;' and Mr. Brande partly agrees with him, as he deduces it from *cantare* and *rola*. Carolle, say Sherwood, is 'a kind of daunce wherein many daunce together.' None of them, however, have noticed that the Welsh *carawl*, a love song, a carol, though not bearing quite as close a resemblance in the pronunciation as as it does to the eye, may possibly be the original. To carol is to sing; to warble; to sing joyously; to sing in praise of. A carol, in a restricted sense, is a devotional or joyous song; generally, any song.

And let the graces dance unto the rest,
For they can do it best;
The whiles the maidens do their *carols* sing,
To which the woods shall answer, and their echo
ring. *Spenser.*

The fields did laugh, the flowres did freshly spring,
The trees did bud, and early blossomes bore,
And all the quire of birds did sweetly sing,
And told the gardin's pleasures in their *caroling*. *Id.*

And hear such heavenly notes and *carolings*
Of God's high praise, that fills the broken sky. *Id.*

No night is now with hymn or *carol* blest. *Shakspeare.*

The *carol* they began that hour,
How that life was but a flower. *Id.*

Even in the Old Testament, if you listen to David's harp, you shall hear as many hearse-like airs as *carols*. *Bacon.*

They gladly thither haste; and, by a choir
Of squadroned angels, hear his *carol* sung. *Milton.*

She with precious violed liquors heals,
For which the shepherds at their festivals
Carol her goodness loud in rustic lays. *Id.*

Opposed to her, on t'other side advance,
The costly feast, the *carol* and the dance,
Minstrels and music, poetry and play,
And balls by night, and tournaments by day. *Dryden.*

This done, she sung, and *carolled* out so clear,
That men and angels might rejoice to hear. *Id.*

Come, let's in some *carol* new
Pay to love and them their due. *Marvell.*

Young Colin Clout, a lad of peerless meed,
Full well could dance, and deftly tune the reed,
In every wood his *carols* sweet were known,
At every wake his nimble feats were shown. *Gay.*

Deep mourns the turtle in sequestered bower,
And shrill lark *carols* clear from her aerial tower. *Beattie.*

Her influence oft the festive hamlet proves,
Where the high *carol* cheers the' exulting ring;
And oft she roams the maze of wildering groves,
Listening the' unnumbered melodies of spring. *Id.*

Methought she *carolled* blithely in her youth,
As the couched nestling trills his vesper lay;
But song and smile, beauty and melody,
And youth and happiness, are gone from her. *Maturin.*

CAROLATH, a town and principality of Silesia, in the circle of Glogau, on the Oder, three miles N.N.W. of Beuthen.

CAROLINA, an extensive country of North America, originally comprehending the west part of Florida, and lying between 29° and 36° 30′ lat. N. It was bounded on the east by the Atlantic, on the west by the river Mississippi, on the north by Virginia, and on the south of Georgia by the Floridas. It is seated between the extremities of heat and cold, though the heat is more troublesome in summer than the cold in winter, the winters being very short, and the frosty mornings frequently succeeded by warm days. The air is generally serene and clear the greatest part of the year, but has heavy rains both in winter and at midsummer. Westerly winds bring very pleasant weather. The depth of winter is towards the end of February, but even then the ice is not strong enough to bear a man. In August and September there are sometimes winds, which are so violent as to make lanes of 100 feet wide, through the woods, tearing up the trees by the roots. They commonly happen about the time of the hurricanes which rage so fatally among the islands between the tropics. The soil on the coast is sandy; but farther up the country is so fruitful that they are at little trouble to manure their land. The grain most cultivated is Indian corn and rice, but any sort will thrive. There are also pulse of several sorts little known in England. All kinds of garden vegetables may be had in great plenty. Cotton has been planted here of late with great success: but the pitch pine tree forms the staple commodity of the country, affording pitch, tar, and turpentine, besides its value as timber. Fine white and red oak is also abundant, and cypress and bay trees crowd the swamps. The long spongy moss of these parts is said, in a remarkable way, to absorb the deleterious vapors, and contribute to the health of the inhabitants. In the back country the misletoe is found. An inferior kind of indigo, and various gums and medicinal drugs are also cultivated. Firs are bought of the Indians with vermillion, gunpowder, coarse cloth, iron, &c. and form a considerable article in trade. Carolina is adorned with many beautiful rivers, among which the Tennessee is the most conspicuous; and woods, which afford delightful seats for the planters, and render the enclosure of their lands very easy. As they have plenty of fish, wild fowl and venison, besides other necessaries, produced naturally, they live easy and luxuriously; and are not very refined in their manners. The chief mountains are the Apalachian, which see.

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Carolina, North, one of the United States of America, situated between 1° 1′ and 6° 35′ W. long. of Washington, and between 33° 51′ and 36° 30′ N. lat. It is 450 miles long from east to west, and 180 broad from north to south, being bounded on the north by Virginia, on the east and south-east by the Atlantic, on the south by South Carolina, and on the west by the new state of Tennessee. This last was originally a part of North Carolina, but was given up to the United States in 1789, and since erected into a separate state. See Tennessee. North Carolina is divided into eight districts, viz. Edenton, Newbern, and Wilmington, which extend along the coast; and Halifax, Hillsborough, Salisbury, Morgan, and Fayetteville, the greater part of which extend across the state from north to south. These districts are subdivided into sixty-two counties, which will be described in their order; their aggregate superficies amounting, according to American computation, to 43,800 square miles. The chief rivers are the Chowan, Roanoke, Pamlico, Yadkin, Catawba, Neuse, Cape Fear, Pasquotank, &c. The chief sounds are Albemarle, Pamlico, and Core. Although North Carolina has upwards of 200 miles of sea-coast, besides being indented by three very large inlets called sounds, it does not afford one good harbour; indeed, a ledge of sand banks flank the coast in its whole extent, rendering the navigation very dangerous in stormy weather, and almost inaccessible at all times; it consequently partakes more of the character of an interior than a maritime state. Some little external intercourse, however, is maintained through Wilmington, situated on Cape Fear River, which intersects the centre of the state from north to south, falling into the sea in the lat. of 34° N. and the productions of the western part of the state are facilitated in their conveyance to market by the Yadkin and Catawba Rivers, which intersect that part between the long. of 3° and 4° W. running south into South Carolina. The Neuse, Tar, Roanoke, and Cho-themselves with great zeal to avoid servitude. In consequence of this struggle, the whole province, distracted with tumults and dissension, became incapable of making any progress, though great things had been expected from its peculiar advantages of situation. In 1705 Carteret, afterwards lord Granville, who, as oldest proprietor, was sole governor, formed a design of obliging all the non-conformists to declare themselves of the Church of England. This act of violence, though disavowed by the mother country, inflamed the minds of the people. In [illegible] the province was attacked by several bands of savages, driven to despair by a continued course of the most atrocious violence and injustice. These unfortunate wretches were all put to the sword; but in 1728 the lords proprietors having refused to contribute towards the expenses of an expedition, of which they were to share the immediate benefits, were all deprived of their prerogative, except lord Granville. The colony was taken under the immediate protection of the crown, and from that time began to flourish. The settlement of Georgia commenced in 1732, and the division took place between North and South Carolina, about three years earlier.

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Carolina, South, another of the United States of North America, being divided from North Carolina by a conventional line, and by the Atlantic coast, in a S.S.W. direction; from the lat. of 33° 50′ to the Savannah River, in the lat. of 32° 2′ N.; and by the Savannah River, in a N.N.W. direction, until it cuts the south-west point of North Carolina, which separates it from the state of Georgia, its area being 30,800 square miles. The general features, character of the soil, and productions of this state are very similar to North Carolina, but having the advantage of several fine navigable rivers and some tolerably good harbours, to facilitate an external commerce, whilst North Carolina ranks among the least, South Carolina ranks among the most important states of the Union. The Yadkin River, rising in the north-east, which when it enters this state is called the Great Pedee, and, after being joined by several tributary streams, falls into George-town Bay; and the Catawba, which also rises in the north-east, and in this state is first called the Wateree, and afterwards the Santee, is united by a canal to Cooper River, which falls into Charleston harbour. Numerous streams, intersecting all the north-west part, unite with the Santee about the centre of the state; and between the Santee and the Savannah are the Edisto, Bigslake, and Coosawhatchie Rivers; so that there is hardly five miles in the state without the advantage of water communications: between the mouths of the Santee and Savannah rivers, the coast is flanked by a chain of islands, on which is produced the valuable cotton called Sea Island. The swamps produce vast quantities of the finest rice, the seed of which was first introduced from Madagascar at the close of the seventeenth century, and previous to 1790 indigo was cultivated to a great extent, and with proportionate advantage; but, since that period, the culture of the cotton plant in the upland country has superseded every other pursuit, and has been carried to an extent without any precedent. The value exported, including rice, in 1823 amounted to 6,898,814 dollars; whilst the value of the merchandise imported direct did not exceed 2,419,100 dollars, the balance being equalised through New York, Philadelphia, and Baltimore. South Carolina is divided into thirty districts, and the population, which in 1790 was only 240,073, in 1820 was 502,741, of whom 6806 were free blacks, and 258,475 slaves. Columbia, nearly in the centre of the state, 506 miles south-west by south of Washington, is the seat of its legislative assembly.

Charleston, which was formerly the capital of all Carolina before the division, is still reckoned the chief town; but Columbia is the seat of government. The public offices have, however, in some measure been divided for the accommodation of the inhabitants of the lower counties, and a branch of each retained in Charleston. There are several respectable academies in Charleston, one in Beaufort, on Port Royal Island, and several others in different parts of the state. Three colleges have lately been incorporated by law; one at Charleston, one at Winnsborough, in the district of Camden, and the other at Cambridge, in the district of Ninety-Six. The legislature, in their session in January 1795, appointed a committee to enquire into the practicability of, and to report a plan for the establishment of schools in different parts of the state. The Presbyterians are the most numerous religious sect.

CAROLINE, a county of the state of Maryland, bounded on the east by Kent county, state of Delaware, and on the west by the Tuckapo and Choptank Rivers, which fall into Chesapeake Bay. Also an interior county in the east part of Virginia, bounded on the north-east by dity of the country, affording pitch, tar, and turpentine, besides its value as timber. Fine white and red oak is also abundant, and cypress and bay trees crowd the swamps. The long spongy moss of these parts is said, in a remarkable way, to absorb the deleterious vapors, and contribute to the health of the inhabitants. In the back country the misletoe is found. An inferior kind of indigo, and various gums and medicinal drugs are also cultivated. Firs are bought of the Indians with vermillion, gunpowder, coarse cloth, iron, &c. and form a considerable article in trade. Carolina is adorned with many beautiful rivers, among which the Tennessee is the most conspicuous; and woods, which afford delightful seats for the planters, and render the enclosure of their lands very easy. As they have plenty of fish, wild fowl and venison, besides other necessaries, produced naturally, they live easy and luxuriously; and are not very refined in their manners. The chief mountains are the Apalachian, which see.

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Caroline Amelia Elizabeth, late queen of England, and consort of his late majesty king George IV. was born on the 17th of May, 1768. Her father, Charles William Ferdinand, hereditary prince of Brunswick, succeeded to the dukedom in 1780, and died 10th November, 1806. See Brunswick. This princess, in common with her sisters, received her education almost entirely under the inspection of the duchess: she was from her youth of a gay and lively disposition, and particularly attentive to the English visiters at her father's court; whom she called, 'The good and brave English!'

Some months after the French revolution, she had a personal interview with her cousin the duke of York, and from that period the family alliance appears to have been in contemplation. Negociations for a marriage between his present majesty, then prince of Wales, and the princess Caroline of Brunswick, were accordingly entered into; and every arrangement having been completed, on the morning of the 20th of December, 1794, the princess, now become by contract princess of Wales, accompanied by her mother and a numerous retinue, departed from Brunswick for Vienna. Here, on their arrival, the duchess was indisposed; but having revived, they proceeded to the palace of Harrenhausen, near Hanover; where the royal party dined. On the 3d of Jannary 1795, they reached Osnaburg, where a messenger met them from lord St. Helens, to announce the return of commodore Payne's squadron to England, and the danger of entering Holland. The bishop's palace had been prepared for their reception; and after a residence of a few weeks stay at Hanover, they proceeded to Cuxhaven, and the princess embarked March 28th, on board his Majesty's ship Jupiter. She landed from this vessel at Greenwich in the afternoon of the 4th April. Magnificent preparations had been made for her reception: on the 8th of April, was celebrated her marriage with the Prince of Wales. But the union was never, personally, a happy one. Its principal importance to the nation arose, of course, from the expectation of a family in the direct line of the crown, and in the ensuing year was born the princess Charlotte, the joy, the pride of the country; and in her early death, the object of its liveliest grief.

We draw a vail over the circumstance known at the time, as the 'Delicate Investigation,' in which the princess of Wales was fully acquitted of all serious charges, by the most impartial judges. In August 1814 she went abroad, contrary to the advice of her confidential friends; if such she ever possessed. Her conduct in this memorable absence became publicly scrutinised on her return; and a bill of pains and penalties on the direct charge of adultery, was introduced into Parliament by his Majesty's ministers, and read a first and second time in the house of lords. The majority, however, in its favor was so small, and the whole measure evidently so repugnant to the feelings of the country that it was finally withdrawn.

In less than a fortnight after the coronation of the king, her majesty was taken dangerously ill, in consequence of having taken a very large dose of magnesia. On Thursday the 2d of August, she was attended by three physicians, Dr. Maton, Dr. Warren, and Dr. Holland, and copiously bled; she passed a quiet night, but her symptoms remained the same. The following day she was immersed for about a quarter of an hour in a warm bath, which moderated the pain, but in other respects was unavailing. Connected with inflammation of the bowels was a nausea at the stomach, which repelled both food and medicine. Another physician, Dr. Ainslie, was now called in; her majesty's legal advisers also attended for the management of her property and other legal matters. Towards the morning of Saturday she obtained some tranquil sleep; but her disorder, with some fluctuations, increased speedily, and on the 7th, during the king's absence in Ireland, she died at Brandenburgh House, Hammersmith. Her funeral was conducted by the government; and the populace evinced a singular attachment to her memory by compelling it, contrary to the public orders given, to pass through the city of London. The body was finally conveyed, agreeably to her own request, to the family vault of her ancestors at Brunswick.

Caroline Islands, a range of thirty islands in the North Pacific Ocean, discovered in 1686, by the Spaniards. They lie to the east of the Philippines, between 138° and 155° E. long. and 8° and 11° N. lat. The natives resemble those of the Philippines. The most considerable island is Hogoleu, about ninety miles long and forty broad: the next is Yap, at the west extremity of the chain, but not above a third part of the size of Hogoleu. They have been little visited by recent navigators.

CAROLINEA, in botany, a genus of the class monadelphia, order polyandria: cal. single, truncate; filaments branched; style very long: stig. six: caps. woody, one-celled, many-seeded. Species two; one a Guiana tree with very entire leaves; flowers solitary, very large and yellow; filaments red; antheræ purple. The other, denominated also bombax, a South American plant of less consequence.

CAROLOSTADIANS, or Carlostadians, an ancient sect of Lutherans, who denied the real presence of Christ in the Eucharist; thus denominated from their leader Carolostadius. They are the same with the Sacramentarians, and agree in most things with the Zuinglians.

CAROLOSTADIUS (Andrew), archdeacon of Wittenberg, was converted by Luther, and was the first of all the reformed clergy who took a wife; but afterwards disagreed with Luther, chiefly on the point of the sacrament.

CAROLUS, an ancient English gold coin, broad and thin, struck under Charles I. Its value has of late been at twenty-three shillings, though at the time it was coined it was rated at twenty.

CAROTIDS. See Anatomy.

CARORA, a city of Colombia, in the province of Venzuela, situate about forty-five miles from the strait that separates the gulf from the lake of Maracaibo, and 150 miles west of Valencia. It is intersected by a stream called the

the king, her majesty was taken dangerously ill, in consequence of having taken a very large dose of magnesia. On Thursday the 2d of August, she was attended by three physicians, Dr. Maton, Dr. Warren, and Dr. Holland, and copiously bled; she passed a quiet night, but her symptoms remained the same. The following day she was immersed for about a quarter of an hour in a warm bath, which moderated the pain, but in other respects was unavailing. Connected with the inflammation of the bowels was a nausea at the stomach, which repelled both food and medicine. Another physician, Dr. Ainslie, was now called in; her majesty's legal advisers also attended for the management of her property and other legal matters. Towards the morning of Saturday she obtained some tranquil sleep; but her disorder, with some fluctuations, increased speedily, and on the 7th, during the king's absence in Ireland, she died at Brandenburgh House, Hammersmith. Her funeral was conducted by the government; and the populace evinced a singular attachment to her memory by compelling it, contrary to the public orders given, to pass through the city of London. The body was finally conveyed, agreeably to her own request, to the family vault of her ancestors at Brunswick.

CAROLINE ISLANDS, a range of thirty islands in the North Pacific Ocean, discovered in 1686, by the Spaniards. They lie to the east of the Philippines, between 138° and 155° E. long. and 8° and 11° N. lat. The natives resemble those of the Philippines. The most considerable island is Hogoleu, about ninety miles long and forty broad: the next is Yap, at the west extremity of the chain, but not above a third part of the size of Hogoleu. They have been little visited by recent navigators.

CAROLINEA, in botany, a genus of the class monadelphia, order polyandria: CAL. single, truncate; filaments branched; STYLE very long: STIG. six: CAPS. woody, one-celled, many-seeded. Species two; one a Guiana tree with very entire leaves; flowers solitary, very large and yellow; filaments red; anthers purple. The other, denominated also bombax, a South American plant of less consequence.

CAROLOSTADIANS, or CARLOSTADIANS, an ancient sect of Lutherans, who denied the real presence of Christ in the Eucharist; thus denominated from their leader Carolostadius. They are the same with the Sacramentarians, and agree in most things with the Zuinglians.

CAROLOSTADIUS (Andrew), archdeacon of Wittenberg, was converted by Luther, and was the first of all the reformed clergy who took a wife; but afterwards disagreed with Luther, chiefly on the point of the sacrament.

CAROLUS, an ancient English gold coin, broad and thin, struck under Charles I. Its value has of late been at twenty-three shillings, though at the time it was coined it was rated at twenty.

CAROTIDS. See ANATOMY.

CARORA, a city of Colombia, in the province of Venzuela, situate about forty-five miles from the strait that separates the gulf from the lake of Maracaibo, and 150 miles west of Valencia. It is intersected by a stream called the

Morera, that runs east into the Caribbean Sea. The inhabitants, about 6000 in number, subsist principally by means of cattle and mules, which they drive to the coast for transhipment to the West India islands. The surrounding country produces a variety of odoriferous balsams and aromatics.

CA'ROTID, *adj.* } Lat. *carotides.* Two
CARO'TIDAL, *adj.* } arteries, from the aorta ascendens, which have their origin near the subclavian arteries.

The *carotid*, vertebral, and splenick arteries, are not only variously contorted, but also here and there dilated, to moderate the motion of the blood. *Ray.*

The two *carotidal* and the two vertebral arteries, are this golden quaternion. *Smith.*

CARO'USE, *v.* & *n.* } Fr. *carouse, carous-*
CARO'USER, *n.* } *ser;* Span. *caraos.* Dr.
CARO'USAL, *n.* } Johnson, after Menage and Skinner, derives the French from the German, *gar ausz*, all out, meaning 'empty it entirely.' The Spanish *caraos* signifies the act of drinking a person's health in a bumper. The origin of the word has also been sought in the Dutch *ruischen*, to roar; and in the Celtic *car*, a circle, because carousing is the custom of drinking round. To carouse is to quaff copious cups; to imbibe drink lavishly. A carouse denotes a drinking match; a hearty dose of liquor. Carousal, which was formerly accented on the first syllable, is a festival; and that too common character, a toper, is entitled to the more poetical appellation of a carouser.

Now, my sick fool, Roderigo,
Whom love hath almost turned the wrong side out,
To Desdemona hath to-night *caroused*
Potations pottle deep. *Shakspeare.*

He calls for wine, a health, quoth he, as if
H'ad been aboard *carousing* to his mates
After a storm. *Id.*

Please you, we may contrive this afternoon,
And quaff *carouses* to our mistress' health. *Id.*
Learn with how little life may be preserved,
In gold and myrrh they need not to *carouse.*
Raleigh.

Now hats fly off, and youths *carouse*,
Healths first go round, and then the house,
The brides came thick and thick. *Suckling.*

He had so many eyes watching over him, as he could not drink a full *carouse* of sack, but the state was advertised thereof within few hours after.
Davies on Ireland.

Our cheerful guests *carouse* the sparkling tears
Of the rich grape, whilst musick charms their ears.
Denham.

This game, these *carousals* Ascanius taught,
And building Alba to the Latins brought.
Dryden.

Waste in wild riot what your land allows,
There ply the early feast and late *carouse.*
Pope.

The bold *carouser*, and adventuring dame,
Nor fear the fever, nor refuse the flame;
Safe in his skill, from all constraint set free,
But conscious shame, remorse, and piety.
Granville.

Death leads the dance, or stamps the deadly die,
Nor ever fails the midnight bowl to crown,
Gaily *carousing* to his gay compeers,
Inly he laughs, to see them laugh at him
As absent far. *Young's Night Thoughts.*

CARP. Fr. *carpe;* Ital. *carpione.* A fresh-water fish, usually kept in ponds.

Nor drain I ponds, the golden *carp* to take,
Nor trowle for pikes, dispeoplers of the lake.
Gay's Rural Sports.

CA'RP, *v.* & *n.* } Fr. *charpir;* Ital. *car-*
CA'RPER, } *pire;* Lat. *carpo.* The
CA'RPING, *adj.* } French signifies to comb
CA'RPINGLY, *adv.* } wool, to hackle flax; the Italian expresses to snatch away, to wrest. In Welsh *carpiaw* means to tear, to tear away; and *carp* is that which is torn away. In all these words the analogy with the English may be traced. To carp is to censure; to cavil at; to find fault with; which may be considered as a sort of snatching at; wresting; pulling to pieces. Carping is equivalent to captious and censorious.

Tertullian, even often through discontentment, *carpeth* injuriously at them, as though they did it even when they were free from such meaning. *Hooker.*

His mouth a poisonous quiver, where he hides
Sharp venomed arrows, which his bitter tongue,
With squibs, *carps*, jests, unto their objects guides;
Nor fears he gods on earth, or Heaven to wrong.
Fletcher's Purple Island.

This your all-licensed fool
Doth hourly *carp* and quarrel, breaking forth
In rank and not to be endured riot. *Shakspeare.*
I have not these weeds,
By putting on the cunning of a *carper.* *Id.*

We derive out of the Latin at second hand by the French, and make good English, as in these adverbs, *carpingly*, currently, actively, colourably. *Camden.*

When I spoke,
My honest homely words were *carped* and censured,
For want of courtly style. *Dryden.*

No *carping* critick interrupts his praise,
No rival strives but for a second place.
Granville.

Lay aside therefore a *carping* spirit, and read even an adversary with an honest desire to find out out his true meaning; do not snatch at little lapses and appearances of mistake. *Watts.*

CARP, in ichthyology. See CYPRINUS, and ANGLING.

CARPÆA, *καρπαια*, a kind of dance anciently in use among the Athenians and Magnesians, performed by two persons, the one a laborer, the other acting as a robber. The laborer laying by his arms, went to ploughing and sowing, still looking warily about him as afraid of being surprised; the robber at length appeared, and the laborer quitting his plough, betook himself to his arms, and fought in defence of his oxen. The whole was performed to the sound of flutes, and in cadence. Sometimes the robber was overcome, and sometimes the laborer; the victor's reward being the oxen and plough. The design of the exercise was to teach and accustom the peasants to defend themselves against the attacks of ruffians.

CARPATHIAN MOUNTAINS, a grand chain which divides Hungary and Transylvania from Poland on the north and north-east, and from Moravia on the north-west, extending about 500 miles. See BASTARNICÆ ALPS.

CARPATHIAN SEA, or CARPATHIUM MARE, the sea that washes the coast of Carpathus.

CARPATHUS, or CARPATHOS, an island on the coast of Asia, 200 stadia or furlongs in compass, and 100 in length. Its name is said to be from its situation on the coast of Caria. It lies between Rhodes and Crete, in the Carpathian Sea, and is said to have been first inhabited by some Cretan soldiers of Minos. According to Strabo it had anciently four cities; according to Scylax only three, whilst Ptolemy mentions but one, which he calls Posepum. The island is now called Scarpanto.

CARPENDOLO, a town of Italy, seated on the Miese, in the Veronese, included in the Italian republic. A battle was fought at this place in January 1797, between the French and Austrians, wherein the republicans under general Menard were victorious, and took 900 prisoners.

CARPENTARIA, a large bay on the north coast of New Holland, discovered in 1618, by a Dutch captain, named Carpenter. That part of the country which borders on the east side of the bay is also called Carpentaria. It has about 1200 miles of coast, and some good harbours. It is frequented by Chinese junks to fish for the the Beche-le-mar, one of the most delicious of the finny tribe, which superabound at the entrance of this bay.

CA'RPENTER, *n.* } Fr. *charpentier*; Span.
CA'RPENTRY, *n.* } *carpintero*; low Lat. *carpentarius*. An artificer in wood, as far as relates to the largest and strongest part of the wood work in houses and ships. The finer work belongs to the joiner. The trade or art of a carpenter.

> This work performed with advisement good,
> Godfrey his *carpenters*, and men of skill
> In all the camp, sent to an aged wood.
>
> *Fairfax's Tasso.*

> In building Hiero's great ship, there were three hundred *carpenters* employed for a year together.
>
> *Wilkins.*

> In burdened vessels first with speedy care,
> His plenteous stores do seasoned timbers send;
> Whither the brawny *carpenters* repair,
> And, as the surgeons of maimed ships, attend.
>
> *Dryden.*

> It had been more proper for me to have introduced *carpentry* before joinery, because necessity did doubtless compel our forefathers to use the conveniency of the first, rather than the extravagancy of the last.
>
> *Moxon's Mechanical Exercises.*

CARPENTER, SHIP, an officer appointed to examine and keep in order the frame of a ship, together with her masts, yards, boats, and all other wooden machinery. It is his duty in particular to keep the ship tight; to review the decks and sides, and to caulk them when it is necessary. In the time of battle, he is to examine, with all possible attention, the lower apartments of the ship, to stop any holes that may have been made by shot, with wooden plugs provided of several sizes.

CARPENTRAS, a beautiful town of France, in Provence, standing on the left bank of the Anson, at the foot of Mont Ventoux. It was once the capital of the papal county of Venaissin, and the see of a bishop, but became
orated with France at the revolution, and
longs to the department of Vancluse. It
od public library, bequeathed originally to the town by one of its bishops; a Roman triumphal arch in tolerable preservation; and several remarkable Roman antiquities. Wine, brandy, and fruit, are its staple articles of trade. In the neighbourhood is a fine modern aqueduct of forty-eight arches. Population about 9000, including perhaps 2000 Jews. Distant twelve miles east of Orange, and thirty-eight north-west of Aix.

CARPENTRY. The art of carpentry, generally speaking, includes every method of working or employing timber in the construction of buildings; but, as it is evident that coarse rough work requires very different management from the delicate finish of interior arrangement, it is usually divided into two classes. Carpentry, properly so called, to which belongs flooring, roofing, and the working of all large pieces of wood; and Joinery, which includes the various ornamental works in wood, (except cabinet-making), besides doors, window sashes, and other objects intended for close inspection. The mode of constructing roofs has already been examined under the article ARCHITECTURE, which see. Joinery will also form a distinct subject in our arrangement; we commence, therefore, with the more elementary parts of the art.

The modes by which timbers are connected together are, generally speaking, perpendicularly, obliquely, sideways, and endways. When timbers are joined perpendicularly, the fibres and joints of one piece run perpendicularly to the fibres of the other; and the joint may then be termed a transverse or a perpendicular joint. When they are connected obliquely, the fibres of the one piece run in an oblique direction towards those of the other; and for this reason it is called oblique joining, and the joint is termed an oblique joint. Timbers are joined sideways when their joints are parallel to the fibres of each piece; and therefore it is termed lateral, or longitudinal, joining, and the joint is called a lateral or a longitudinal joint. When timbers are joined edgeways, their common seam or joint is perpendicular to the fibres of each piece, and the joint is then said to be a butting joint.

With respect to joining timbers perpendicularly, fig. 1. plate I. CARPENTRY, represents a section of a trimmer, and a part of the joist, framed with a simple mortise and tenon in a longitudinal direction. The tenon is usually made in the middle with a plain shoulder.

Fig. 3 represents a section of a girder through its mortises, and figs. 2 and 4 delineate part of the joist in a longitudinal direction. The best method, in order to give strength to the tenons, is to make a rest of a short length under it, with a sloping shoulder above, extending in a line from the extremity of the rest, to the perpendicular of the square shoulder below at the upper edge of the joist.

Fig. 4, plate I. of CARPENTRY, represents the section of a double floor, with a girder taken in a transverse direction to the bridging joists.

A shows the section of the girder; D E, D E, the binding joists; *a*, *a*, *a*, represent also the ends of bridging joists; *b*, *b*, *b*, the ends of ceiling joists, chased, mortised into binding joists, by a method which will be hereafter described

Fig. 5, of the same plate, shows the section of to the town by one of its bishops; a Roman triumphal arch in tolerable preservation; and several remarkable Roman antiquities. Wine, brandy, and fruit, are its staple articles of trade. In the neighbourhood is a fine modern aqueduct of forty-eight arches. Population about 9000, including perhaps 2000 Jews. Distant twelve miles east of Orange, and thirty-eight north-west of Aix.

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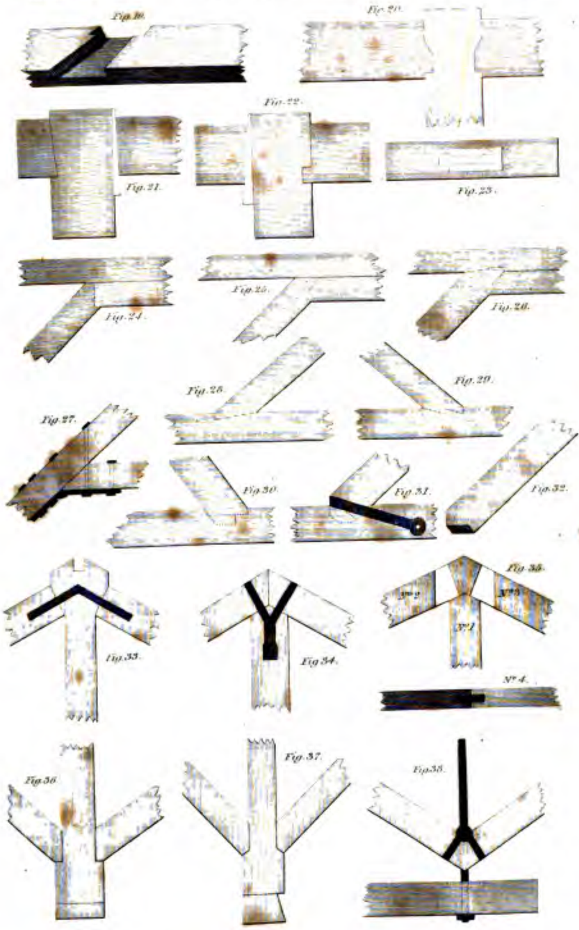
PART 183 VOL V

CARPENTRY.

PLATE II.



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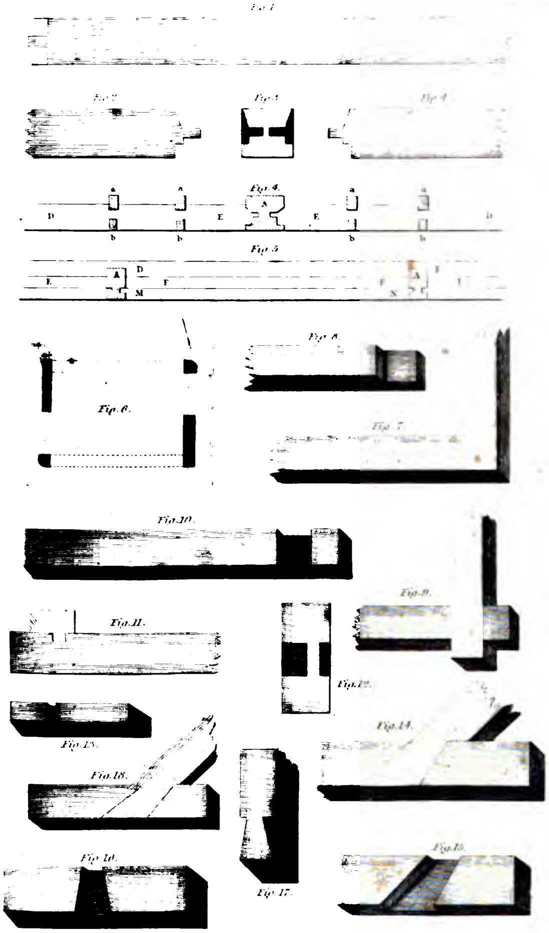
CARPENTRY.



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floor, taken in a transv
binding joists. A, A, exh
binding joists; D E, part of
B, ceiling joists; and E F, E
joists. It may be readily
of the binding joists are m
as described in the prec
and joists.
Fig. 6 exhibits a method whe
may be framed betwe
which are supposed
to make close work, the
and the bottom of the m
made to assume the arc of
in one edge of the mor
of the tenon, and the l
at the other end, in a c
same centre. The mortise
longer than the breadth
be a large part of the
may be afterwards fille
bottom of the mortise, in
formed in the arc of a ci
to the edge, at the d
not impede the transvers
place. In forming the mo
end where the centre is
for the mortise and
quadrant, but the botto
the edge only which is
circular. This useful
used in ceiling, joistin
and the long mortises cu
chase mortises.
If it be required to notch
another, or to connect the
one right angle, with
in each, then eac
half through, and
be nailed or pinne
represents two pieces of tim
; and fig. 8 shows
which receives the
other.
By making a correspond
distance from the
may be connected to
right angles. Fig. 9
as above, and fig. 1
one of the pieces, whic
part remaining in the
also cut out. By this
the pieces may be s
surfaces in the same
as may be found co
These methods are
at the corners of
represents an excellent
wall plates, when the
pressure. A sma
beam, and the co
notch, are cut in
Fig. 11 represents a
upon a transverse
fig. 12 shows the
wherein the two
lower side of the bea
Figs. 14, 15, 16, 17,
represent metho

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bridging joist;
F, parts of ceil-
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ween two parallel
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of a circle, with its
mortise; and the ex-
he bottom of the mor-
a concentric arc from
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eadth of the tenon, there
f the mortise still open,
ds filled up. Instead of
ise, in this instance, be-
of a circle, it may be cut
at the deepest part, as it
transverse piece going into
ng the mortise and tenon, at
entre is placed, there is no
ortise and tenon to form an
t the bottom may be parallel,
which is opposite the centre
his useful mode of framing is
ling, joisting for double floors,
mortises cut in this manner are
rtises.
red to notch one piece of timber
o connect the two, so as they may
angle, with an equal degree of
ach, then each piece should be
through, and afterwards the two
ailed or pinned together. Fig. 7
vo pieces of timber framed after this
nd fig. 8 shows the socket of one
h receives the neck or substance of

sing a corresponding notch at any con-
istance from the end in each piece, two
ay be connected together, so as to form
ht angles. Fig. 9 shows two pieces
as above, and fig. 10 exhibits the socket
of the pieces, which is cut out to receive
rt remaining in the other, after its socket
cut out. By this mode of joining tim-
the pieces may be so notched as to have
surfaces in the same plane, or one above the
r, as may be found convenient.

These methods are used to connect bond
bers at the corners of a building. Fig. 11
presents an excellent mode of fitting beams
wall plates, when the walls are affected by
ateral pressure. A small notch is cut out of
the beam, and the contrary parts, forming a
double notch, are cut in the wall plate to receive
it. Fig. 11 represents a longitudinal part of the
beam upon a transverse section of the wall plate;
and fig 12 shows the upper part of the wall
plate, wherein the two notches are made; fig.
13, lower side of the beam, exhibiting the notch.

Figs. 14, 15, 16, 17, 18, 19, Carpentry, plate I represent methods of joining one piece of timber to another, by dove-tailing, so that the surface of the one may be parallel and perpendicular to that of the other; these figures also represent various forms of cutting the dovetail, and are very useful in showing the mode of fixing angle-ties to wall plates, &c. &c. It is evident that timbers can be joined by this method either perpendicularly or obliquely.

Fig. 20, Carpentry, plate II., exhibits another method of fixing beams to wall plates, in order to bind the sides of the building together.

A piece of timber may be joined at right angles to another in the manner of fig. 21, which is a longitudinal section in the direction of the fibres of both pieces. A mortise is made in the one piece to correspond with its breadth, which is to form the perpendicular; the edge of the tenon is then cut with a dove-tail notch, so that the piece may be at right angles with the other, and a wedge or key is next driven from the other edge of the tenon, which forces it quite close. When the timber of which the piece containing the dovetail may be formed, is not quite dry, the tenon will shrink in proportion to its breadth, by which circumstance the perpendicular piece will become liable to be drawn out from the other to a certain degree. This defect is remedied in the section exhibited at fig. 22, where, instead of the edge of the tenon being cut in the form of a dovetail, a notch is made in it. Fig. 23, shows another view of the perpendicular piece with the wedge.

Figs. 24, 25, 26, exhibit the methods used for the meeting of a brace and straining piece under a truss beam. Of these methods the first is the best.

Fig. 27 exhibits a method of securing a collar beam at one extremity, and preventing it from being pulled away at the joint, by a bolt made to pass through the rafter, at the angle formed by their meeting.

Fig. 28 represents one form of the heel of a principal rafter, with the socket cut in the end of the tie beam to receive it; this method, however, is defective in strength, because the small part cut across the fibres of the beam being too near its extremity, it will become liable to be forced away, in consequence of its having to sustain the entire force of the rafter.

Fig. 29 is intended to remedy this defect, by forming two abutments equally deep into the beam; a mode which not only produces a resistance to the rafter, fully equal to that in the former method, but adds to it the strength of the intermediate part contained between the two abutments. The intermediate part in this mode, from having the fibres out across, is easily split away.

Another mode of forming a double resistance, is shown at fig. 30. In this figure it will be observed that the heels of the rafter and the socket are cut parallel to the fibres of the tie beam, the end of the rafter forming one abutment, and the tenon the other, which has the effect of removing it farther from the extremity.

Fig. 31 represents the best mode of forming a resistance on the heel of the rafter and socket at the extremity of the beam. The abutment, by this plan, is brought nearer to the inner part of the heel, which of course leaves a greater length on the end of the beam, and renders the resistance still greater than that produced by the wood. In order still further to strengthen and secure it, a strap may be placed round the extremity of the rafter, and the two ends may be bolted together, through the beam, as is represented in figs. 31 and 32.

Fig. 33 represents the mode of forming a junction of the rafters, and the joggle-head of the king-post, together with the manner of strapping them. This mode, however, will be found defective when the joggle-head of the king-post should happen to shrink; for it is evident, that in that case, the roof will descend, and consequently put it out of shape.

Fig. 34, introduced by Mr. Nicholson, shows a mode of forming a junction by making the rafters meet each other, without the intervention of the joggle-head, which is usually made to the king-post, and of course it has a great advantage over the preceding method.

Fig. 35, introduced by Mr. Nicholson, represents another mode of hanging king-posts to their principal rafters, which meet each other, as in fig. 11.

Instead of the forked strap, a bolt is used in this case with a spreading head, so as to form a shoulder perpendicular to the rafters, which are notched on purpose to receive it. This has the effect, also, of preventing the rafters of a roof from sinking in the middle. The whole may be made of iron, consisting of two parts connected together by means of a screw, which will draw the beam as high as may be required. No. 1 is part of the king-post with the bolt. Nos. 2 and 3 are parts of the rafters, and No. 4 presents a view of the upper edge of the rafters.

Figs. 36 and 37 exhibit the most approved forms for the abutments of the braces, at the lower part of the king's post.

Fig. 38 shows the form of an abutment, when the part which makes the resistance in the direction of the king-post is perpendicular to it, and sometimes another form of the abutment is used where the part of the shoulders which makes the resistance is perpendicular to the brace.

Mr. P. Nicholson has introduced a very valuable mode of connecting two braces with an iron king-post. It is effected by employing a small rod of iron sufficiently strong to bear up the middle of the beam, and to resist the force of the braces by the weight of the middle rafters. The strap, which prevents the braces from being pushed downwards, has an eye through each side, and the bottom of the king-rod is formed with a cross, equal in length to the thickness of the braces; this cross is perforated in its length to receive the bolt.

We come now to the consideration of floors A floor, in carpentry, is the timber-work for supporting the boards upon which we walk. A row of timbers employed in floors is called joisting. When a floor consists only of one row of timbers, it is called a common joist floor.

Framed floors are those where the ends of joists are supported by a large beam of timber, called a girder, which is mortised from each vertical side to receive the tenons which are cut on the ends of the joists. When a framed floor consists of only one row of joists, the floor is said to be single framed. When the joists on each side of the girder support another row of timbers, parallel to the girder, the floor is called a double floor. The row of timbers which are fastened to the girder by mortise and tenons are called binding joists, and those timbers which are supported by the binding joists, are called bridging joists. To a double framed floor there is another row of small timbers, attached to the binding joists, for supporting the lath and plaster; and are either nailed to the underside of the binding joists, or fixed to them by means of mortise and tenon.

In some single joisted floors every third or fourth joist is made deeper than the intermediate joists, and the ceiling joists are fixed to the deep joists, the one crossing the other at right angles. This construction is adapted to the prevention of sound, which must suffer an intermission by reason of the space between the timbers. As no timbers must enter a wall where there are fire-places or flues, the ends of the joists, instead of being supported by the wall at such places, must be supported by a piece of timber parallel thereto by mortise and tenons, and this piece of timber must be fixed by mortise and tenons at each end, to the nearest joists to such fire-place or flue; each of these joists is called a trimming joist, and the piece of timber which supports the joists leading to the fire-place or flues, is called a trimmer. As the trimming joists have also to support the intermediate joists, they ought to be in thickness equal to the breadth of the common joists, increased by a sixth part of that breadth.

In double floors, the under sides of the binding joists are frequently framed flush with the under-side of the girder, and about three or four inches below the top, in order to receive the bridging joists. Some old authors direct that the bridging joists should be pinned down to the binding joists; but this is unnecessary, and besides, it weakens the binding joists; this practice is therefore inadmissible.

It was formerly the practice to place the binding joists about three feet or three feet six inches distant from each other; the mean distance of the present practice is about five feet. Single floors, consisting of the same quantity of timber, are much stronger than framed floors; but a preference is sometimes given to framed floors in superior buildings, on account that they are not so liable to fracture the ceilings, and because they conduct sound more imperfectly than a common joist floor, and hence it is that single floors can only be employed in inferior buildings.

Framed floors differ from double floors only in the binding joists being framed to girders. In single floors, where the joists exceed eight feet bearing, pieces of board ought to be inserted in the spaces between the joists in a vertical position, and nearly the whole depth of the joists, and in one continued line at right angles to the joisting. The pieces of timber thus inserted are called struts, and the floor is said to be strutted, the struts ought not to be driven in with great force, but their ends should be in close contact with the vertical sides of the joists, and should be fixed thereto with a nail at each end.

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The strutting of a floor is of great use when the joists are thin and deep, in preventing their buckling pressure; but for this purpose there is another method called keying, which consists in framing short pieces of timber between the joists; but as the mortises which receive the tenons weaken the joists, and as the keys cannot be in a straight line, and since this method adds considerably to the expense, this practice is not so eligible as that of strutting. Single joist flooring may be used to any extent not exceeding sixteen feet; but when it is desirable to preserve the ceiling free from cracks, and to prevent the passage of sound, a framed floor is necessary.

The ceiling joists in double floors are generally put in after the building is up; if, therefore, they are fixed by means of mortises in the sides of the binding joists, to relieve tenons on their ends, the space between every other two mortises must be grooved out alternately upon the opposite sides of the two adjacent binding posts; by this means the ceiling posts may easily be put in their places by inserting the tenon in each ceiling joist in the mortises at one end, and sliding the tenon on the other end along the groove in the arc of a circle, until the ceiling joist come at a right angle with the binding joist. The long mortises or grooves in the sides of the binding joists are called chace mortises or pulley mortises. The ceiling joists may be thirteen or fourteen inches apart; the thickness of the bridging joists and ceiling joists need not be greater than what is sufficient to resist splitting by the driving in of the nails in order to fix them. It has been found by experience, that two inches is a sufficient thickness for the purpose.

In double framed floors, the distance of bridging joists in the clear ought to be about twelve inches, and should never exceed thirteen. It is a good practice to plane the upper edges of the bridging joists straight, because, when the boarding is laid, the faces for walking upon will be more regular than if the boards had been laid down upon the edges of the bridging joists when rough from the saw.

We have now to consider the subject of the strength of timber, one of the most important in the art of carpentry; since, without a due regard to it, no erections can possibly be made, but what depend solely on chance for their success. Yet, of all the branches of the science of architecture, none, perhaps, has received so little elucidation from the investigations of the learned. Nor will the cause of this seeming neglect appear problematical, when it is considered that there is none requiring such vast and expensive apparatus, more close and continued application, or more judgment and practical experience to obtain any decisive conclusions. Accordingly, in our own country, experiments have never been made on a scale sufficiently large to be of much importance as a guide in practice; and we owe to the liberality of the ancient monarchy of France nearly all the knowledge we possess on this most interesting subject. Messrs. Buffon and Du Hamel, about the middle of the last century, were directed by that government to make a variety of experiments; they were furnished with ample funds and apparatus, and all the forests of France were at their disposal for subjects. The reports of M. de Buffon may be found in the Memoirs of the French Academy for the years 1740, 1741, 1742, and 1760; and those of M. Du Hamel in his work, Sur l'Exploitation des Arbres, and sur le Conservation et la Transportation de Bois. The essential parts of them we shall notice presently.

The strength of all bodies consists in the cohesion of their particles, and as this cohesion admits of many modifications, in its various appearances of hardness, elasticity, and softness, the texture of bodies must be taken into account before we can arrive at mathematical demonstrations on the subject: and the experiments recorded, have been, for the reasons before assigned, so few, limited, and doubtful, as to produce no principles on which to ground our future calculations.

A general idea of the force of the attraction of cohesion may be obtained from the instance of a lever, in which, by the compression of one end, a strain is occasioned in a distant part. In order to understand its nature with precision it will be necessary to review such general laws as are immediately necessary as a guide in mechanical operations.

First. We have presumptive evidence to prove that all bodies are elastic in a certain degree, that is, when their form or bulk is changed by certain moderate compressions, it requires the continuance of the force producing the change, in order to continue the body in its altered state, and, when the compressing force is removed, the body recovers its original form and tension.

Secondly. That whatever may be the situation of the particles composing a body, with respect to each other when in a state of quiescence, they are kept in their respective places by the balance of opposing forces.

Thirdly. It is an established fact, that every body has some degree of compressibility, as well as of dilatability; and when the changes produced in its dimensions are so moderate, that the body completely recovers its original form on the cessation of the changing force, the extensions or compressions bear a sensible proportion to the extending or compressing forces; and, therefore, the connecting forces are proportioned to the distance, at which the particles are diverted, or separated, from their usual state of quiescence.

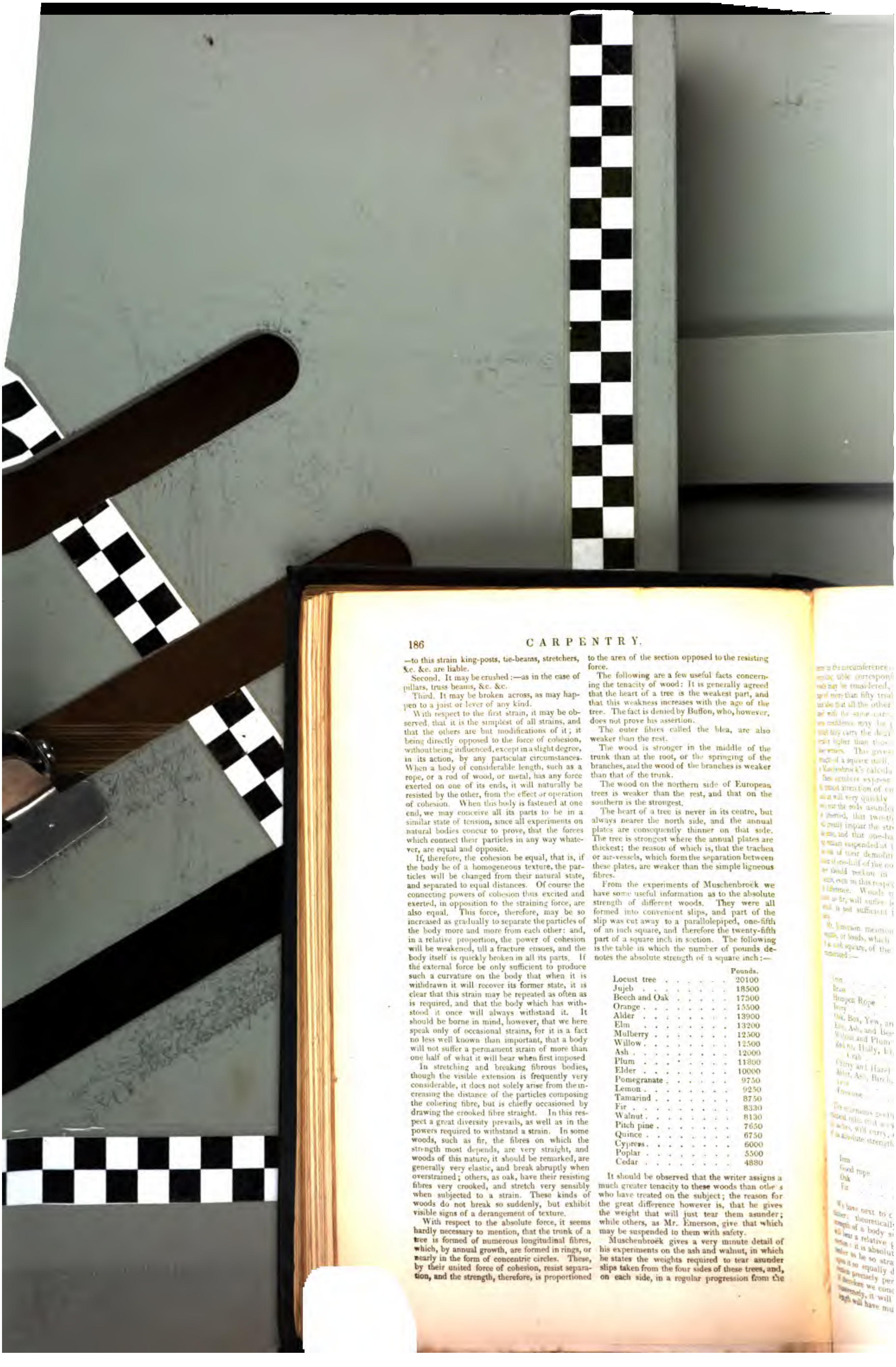
Fourthly. It is universally observable, that when the dilatations have proceeded to a certain length, a less addition of force is afterwards sufficient to increase the dilatation in the same degree. For instance, when a pillar of wood is overloaded, it swells out, and small crevices appear in the direction of the fibres. After this, it will not bear half of the previous load.

Fifthly. That the forces connecting the particles composing tangible or solid bodies, are altered by a variation of distance, not only in degree, but also in kind.

Having now enumerated the principal modes, in which cohesion confers strength on solid bodies, we proceed to consider the strains to which this strength may be opposed.

These strains are three in number, viz.—

First. A piece of matter may be torn asunder:



—to this strain king-posts, tie-beams, stretchers, &c. &c. are liable.

Second. It may be crushed:—as in the case of pillars, truss beams, &c. &c.

Third. It may be broken across, as may happen to a joist or lever of any kind.

With respect to the first strain, it may be observed, that it is the simplest of all strains, and that the others are but modifications of it; it being directly opposed to the force of cohesion, without being influenced, except in a slight degree, in its action, by any particular circumstances. When a body of considerable length, such as a rope, or a rod of wood, or metal, has any force exerted on one of its ends, it will naturally be resisted by the other, from the effect or operation of cohesion. When this body is fastened at one end, we may conceive all its parts to be in a similar state of tension, since all experiments on natural bodies concur to prove, that the forces which connect their particles in any way whatever, are equal and opposite.

If, therefore, the cohesion be equal, that is, if the body be of a homogeneous texture, the particles will be changed from their natural state, and separated to equal distances. Of course the connecting powers of cohesion thus excited and exerted, in opposition to the straining force, are also equal. This force, therefore, may be so increased as gradually to separate the particles of the body more and more from each other: and, in a relative proportion, the power of cohesion will be weakened, till a fracture ensues, and the body itself is quickly broken in all its parts. If the external force be only sufficient to produce such a curvature on the body that when it is withdrawn it will recover its former state, it is clear that this strain may be repeated as often as is required, and that the body which has withstood it once will always withstand it. It should be borne in mind, however, that we here speak only of occasional strains, for it is a fact no less well known than important, that a body will not suffer a permament strain of more than one half of what it will bear when first imposed

In stretching and breaking fibrous bodies, though the visible extension is frequently very considerable, it does not solely arise from the increasing the distance of the particles composing the cohering fibre, but is chiefly occasioned by drawing the crooked fibre straight. In this respect a great diversity prevails, as well as in the powers required to withstand a strain. In some woods, such as fir, the fibres on which the strength most depends, are very straight, and woods of this nature, it should be remarked, are generally very elastic, and break abruptly when overstrained; others, as oak, have their resisting fibres very crooked, and stretch very sensibly when subjected to a strain. These kinds of woods do not break so suddenly, but exhibit visible signs of a derangement of texture.

With respect to the absolute force, it seems hardly necessary to mention, that the trunk of a tree is formed of numerous longitudinal fibres, which, by annual growth, are formed in rings, or nearly in the form of concentric circles. These, by their united force of cohesion, resist separation, and the strength, therefore, is proportioned to the area of the section opposed to the resisting force.

The following are a few useful facts concerning the tenacity of wood: It is generally agreed that the heart of a tree is the weakest part, and that this weakness increases with the age of the tree. The fact is denied by Buffon, who, however, does not prove his assertion.

The outer fibres called the blea, are also weaker than the rest.

The wood is stronger in the middle of the trunk than at the root, or the springing of the branches, and the wood of the branches is weaker than that of the trunk.

The wood on the northern side of European trees is weaker than the rest, and that on the southern is the strongest.

The heart of a tree is never in its centre, but always nearer the north side, and the annual plates are consequently thinner on that side. The tree is strongest where the annual plates are thickest; the reason of which is, that the trachea or air-vessels, which form the separation between these plates, are weaker than the simple ligneous fibres.

From the experiments of Muschenbroek we have some useful information as to the absolute strength of different woods. They were all formed into convenient slips, and part of the slip was cut away to a parallelepiped, one-fifth of an inch square, and therefore the twenty-fifth part of a square inch in section. The following is the table in which the number of pounds denotes the absolute strength of a square inch:—

	Pounds.
Locust tree	20100
Jujeb	18500
Beech and Oak	17300
Orange	15500
Alder	13900
Elm	13200
Mulberry	12500
Willow	12500
Ash	12000
Plum	11800
Elder	10000
Pomegranate	9750
Lemon	9250
Tamarind	8750
Fir	8330
Walnut	8130
Pitch pine	7650
Quince	6750
Cypress	6000
Poplar	5500
Cedar	4880

It should be observed that the writer assigns a much greater tenacity to these woods than others who have treated on the subject; the reason for the great difference however is, that he gives the weight that will just tear them asunder; while others, as Mr. Emerson, give that which may be suspended to them with safety.

Muschenbroëk gives a very minute detail of his experiments on the ash and walnut, in which he states the weights required to tear asunder slips taken from the four sides of these trees, and, on each side, in a regular progression from the to the area of the section opposed to the resisting force.

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centre to the circumference. The numbers in the foregoing table corresponding with these two woods may be considered, therefore, as the average of more than fifty trials of each. He mentions also that all the other numbers were calculated with the same care. For these reasons some confidence may be placed in the results; though they carry the degrees of tenacity considerably higher than those enumerated by some other writers. This gives 8640 for the greatest strength of a square inch, which is much inferior to Muschenbroëk's calculation.

These numbers express something more than the utmost attraction of cohesion, the weights are such as will very quickly (that is in a minute or two) tear the rods asunder. In general it may be observed, that two-thirds of these weights will greatly impair the strength after a considerable time, and that one-half, is the utmost that can remain suspended at them, without incurring the risk of their demolition; and on this calculation of one-half of the nominal weight, the engineer should reckon in all his constructions; though, even in this respect, there are great shades of difference. Woods of a very straight fibre, such as fir, will suffer less injury from a load which is not sufficient to break them immediately.

Mr. Emerson mentions the following as the weights, or loads, which may be safely suspended to an inch square, of the several bodies hereafter enumerated :—

	Pounds.
Iron	76400
Brass	35600
Hempen Rope	19600
Ivory	15700
Oak, Box, Yew, and Plum tree	7850
Elm, Ash, and Beech	6070
Walnut and Plum	5360
Red fir, Holly, Elder, Plane, and Crab	5000
Cherry and Hazel	4760
Alder, Ash, Birch, and Willow	4290
Lead	430
Freestone	914

This ingenious gentleman has laid down as a practical rule, that a cylinder, whose diameter is six inches, will carry, when loaded to one-fourth of its absolute strength, as follows :—

	Cwt.
Iron	135
Good rope	22
Oak	14
Fir	9

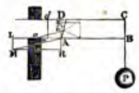
We have next to consider the compression of timber: theoretically speaking, the positive strength of a body suffering under compression will bear a relative proportion to the area of its section: it is absolutely impossible for a piece of timber to be so straight, and the weight acting upon it so equally disposed, as to press in a direction precisely perpendicular upon each fibre. If therefore we conceive the smallest force acting transversely, it will be easily imagined that the length will have much to do with the strength.

Parent has shown that the force required to crush a body, is nearly equal to that which will tear it asunder. He observes, also, that it requires something more than sixty pounds on every square line, to crush a piece of sound oak; but this rule is by no means general, glass, for instance, will carry a hundred times more on it than oak in this way, but will not bear suspended above four or five times as much. Oak will suspend a great deal more than fir, but fir, as a pillar, will carry twice as much. Woods of a soft texture, although they may be composed of very tenacious fibres, are more easily crushed by the load upon them. The softness of texture is chiefly owing to the crooked nature of their fibres, and to the existence of considerable vacuities between each fibre, so that they are more easily bent in a lateral direction and crushed. When a post is overstrained by its load, it is observed to increase sensibly in diameter.

The first author who has considered the compression of columns with attention is the celebrated Euler, who published, in the Berlin Memoirs for 1757, his theory of the strength of columns. The general proposition established by this theory is, that the strength of prismatic columns is in the direct quadruplicate ratio of their diameters and the inverse ratio of their lengths. He prosecuted this subject in the Petersburgh Commentaries for 1778, confirming his former theory. Muschenbroëk has compared the theory with experiments, but the comparison has been very unsatisfactory, the experiments neither confirming nor positively negativing the theory.

The next and most common strain to which bodies are exposed, is that which tends to break them across.

In strains of this kind it frequently happens, that the power of a lever is exerted in addition to the positive force of the strain.



Let A B C D, in the above diagram, be supposed to represent the vertical section of a prismatic solid, projecting horizontally from a wall in which it is firmly fixed; and let a weight be hung on it at B, or let any power act at B, in a direction perpendicular to A B.—Let this body be also considered to possess insuperable strength in every part, except in the vertical section D A, perpendicular to its length, in which section only it must break.—Let the cohesion be uniform throughout the whole of this section: that is, let each of the adjoining particles of the two parts cohere with an equal force *f*. There are two ways in which it may then break. The part A B C D, may simply slide down along the surface of the fracture, provided the power acting at B be equal to the accumulated force which is exerted by every particle composing the section, in the direction A D. But let this be supposed as effectually prevented by something supporting the point A. The action at P, tends to make the body turn round A (or round a horizontal line passing through A at right angles with A B) in the same manner as round a joint. This it cannot do without separating at the line D A, in which case the adjoining particles at D, or at E, will be separated horizontally. But their attraction of cohesion resists this separation. In order, therefore, that the fracture may happen at the place intended, the energy of the power P, acting by means of the lever A B, must be superior to the accumulated energies of the component particles. The energy of each depends not only on its cohesive, or connecting force, but also on its peculiar situation; for the supposed insuperable firmness of the rest of the body, renders it a lever turning round the fulcrum A, and the individual cohesive power of each particle, such as D or E, acts by means of the arm D A or E A. The precise energy of each particle will consequently be ascertained by multiplying the force individually exerted by it at the moment of fracture, by the arm of the lever which enables it to act.

Let us then suppose that, at the moment of fracture, every individual particle exerts an equal force f. The energy of D, will be $D A \times f$, that of F will be $E A \times f$, and that of the whole will be the sum of all these products. Let the depth D A of the section, be called d, and let any undetermined part of it, as A E, be called x, then the space occupied by any particle will be x. The cohesion of this space may be represented by $f x$, and that of the whole by $f d$. The energy by which each element x, of the line D A, or d, resists the fracture, will be $f x x$, and the whole accumulated energies will be $f \times \int x x$. This is well known to be $f \times \frac{1}{2} d^2$, or $f d \times \frac{1}{2} d$. It is the same thing, therefore, as if the cohesion, $f d$, of the whole section had been concentred together at the point G, which is in the middle of D A.

In the next place, we may remark, that a certain determinate curvature being suitable to every beam it cannot be exceeded without breaking it; since two adjoining particles are thereby separated, and an end is put to their cohesion. A fibre can be extended only to a certain degree of its length. The ultimate extension of the outer fibres must bear a certain proportion to its length, and this proportion is similar in the point of depth to the radius of ultimate curvature, which is, therefore, determinate. Consequently a beam of uniform breadth and depth, is most incurvated where the strain is greatest, and will necessarily break in the most incurvated part. But by changing its form, so as to render the strength of its different sections in the ratio of the strain, it is evident that the curvature will be the same throughout, or that it may be made to vary according to any law.

CARPENTUM, in antiquity, a name common to divers sorts of vehicles, answering to coaches, waggons, carts, &c. among us. The carpentum was originally a kind of car in which the Roman ladies were carried; though in after times it was also used in war. Some derive the word from carras; others from carmenta, by a conversion of the m into p.

CARPESIUM, in botany, a genus of the order polygamia superflua, and syngenesia class of plants; natural order forty-ninth, compositæ. Receptacle naked; downless: CAL. imbricate, the outer scales reflected; florets of the margin five-cleft. Species two; one native of the south of Europe, the other of China.

CAR'PET, *v.* & *n.* Ital. *carpetta;* Dutch *karpet.* A parti-colored covering, made of wool, to spread on a floor; formerly, the name was given to a table-cover. Poetically, it signifies level ground, adorned with flowers; and any variegated surface. The word is also proverbially used for an easy and luxurious state; a carpet knight is one who has never seen service. To be on the carpet is to be under consideration; to be in hand.

Be the Jacks fair within, the Jills fair without, *carpets* laid, and every thing in order? *Shakspeare.*

Go, signify as much, while here we march
Upon the grassy *carpet* of this plain. *Id.*

He is knight, dubbed with unhacked rapier, and upon *carpet* consideration. *Id.*

Against the wall, in the middle of the half pace, is a chair placed before him, with a table and *carpet* before it. *Bacon.*

We found him in a fair chamber, richly hanged and *carpeted* under foot, without any degrees in the state; he was set upon a low throne, richly adorned, and a rich cloth of state over his head, of blue sattin embroidered. *Bacon.*

In the year 1555, Chancelor made another voyage to this place, with letters from Queen Mary; had a house in Mosco, and diet appointed him; and was soon admitted to the emperor's presence in a large room spread with *carpets*; at his entering and salutation all stood up, the emperor only sitting, except when the queen's name was read, or spoken, for then he himself would rise; at dinner he sat bareheaded; his crown and a rich cap hanging on a pinnacle by. *Milton. History of Moscovia.*

The *carpet* ground shall be with leaves o'er spread,
And boughs shalt weave a covering for your head.
Dryden.

The whole dry land is, for the most part, covered over with a *carpet* of green grass and other herbs.
Ray.

One track led winding down a shelving dale,
All arch'd with bending branches over-head,
The other opening to the northern gale,
Wide and more wide its greenwood *carpet* spread.
Gay.

CARPET KNIGHTS, a denomination given to gown-men and others, of peaceable profession, who on account of their birth, office, or merits, are raised to the honor of knighthood.

I change
My thought, and hold thy valor light
As that of some vain *carpet knight.*
Scott's Lady of the Lake.

CARPI, a ci-devant principality of Modena, about four leagues from that city, included in the late Italian republic and dependency of the Crostolo. It formerly belonged to the house of Pio. In the beginning of the fourteenth century, Manfroy was the first prince of Carpi; but in the sixteenth, the emperor Charles V. gave it to Alfonzo duke of Ferrara.

CARPI, the capital of the above district is situated on the Sechia. It has a strong castle,

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Upon the grassy *carpet* of this plain. *Id.*

He is knight, dubbed with unhacked rapier, and pon *carpet* consideration. *Id.*

Against the wall, in the middle of the half pace, a chair placed before him, with a table and carpet efore it. *Bacon.*

We found him in a fair chamber, richly hanged id *carpeted* under foot, without any degrees in the ate; he was set upon a low throne, richly adorned, id a rich cloth of state over his head, of blue satin abroidered. *Bacon.*

In the year 1555, Chancelor made another voyage this place, with letters from Queen Mary; had house in Mosco, and diet appointed him; and s soon admitted to the emperor's presence in a ge room spread with *carpets*; at his entering and utation all stood up, the emperor only sitting, except when the queen's name was read, or spoken, then he himself would rise; at dinner he sat bareaded; his crown and a rich cap hanging on a pinle by. *Milton. History of Moscovia.*

The *carpet* ground shall be with leaves o'er spread,
d boughs shalt weave a covering for your head. *Dryden.*

The whole dry land is, for the most part, covered r with a *carpet* of green grass and other herbs. *Ray.*

track led winding down a shelving dale,
ll arch'd with bending branches over-head,
other opening to the northern gale,
ide and more wide its greenwood carpet spread. *Gay.*

ARPET KNIGHTS, a denomination given to n-men and others, of peaceable professions, on account of their birth, office, or merit, aised to the honor of knighthood.

I change
My thought, and hold thy valor light
As that of some vain *carpet knight*. *Scott's Lady of the Lake.*

ARPI, a ci-devant principality of Modena, four leagues from that city, included in te Italian republic and dependency of the olo. It formerly belonged to the house of In the beginning of the fourteenth century Manfroy was the first prince of Carpi; but sixteenth, the emperor Charles V. gave it onzo duke of Ferrara.

arpi, the capital of the above district is d on the Sechia. It has a strong castle,

and lies tw ve miles north of Modena. Long. 11° 12′ E., lat. 11° 45′ N.

Carpi, a town of Italy, in the Veronese, included in the late republic, and dependency of Benaco; memorable for a victory gained by the imperialists over the French, in 1701. It is situated on the Adige, twenty-seven miles south of Verona.

Carpi (Girolamo da), history and portrait painter, born at Ferrara, in 1501, and a disciple of Garofalo. He acquired such an excellence in the imitation of Corregio's style, that many paintings copied by him were taken for originals, and eagerly purchased by the connoisseurs. Nor is it improbable, that several of his paintings pass at this day for the genuine works of Corregio. He died in 1556.

Carpi (Ugo da), an Italian painter, remarkable for being the inventor of that species of engraving on wood, distinguished by the name of chiaro scuro, in imitation of drawing. This is performed by using more blocks than one; and Ugo da Carpi usually had three; the first of the outline and dark shadows, the second for the lighter, and the third for the half tint. In that manner he struck off prints after several designs, and cartons of Raphael; particularly one of the Sybil, a descent from the cross, and the history of Simon the Sorcerer. He died in 1500.

CARPINUS, the horn-bean, in botany: a genus of the polyandria order, and monœcia class of plants; natural order fiftieth, amentaceæ: CAL. of the male monophyllous and ciliated; amentum, with roundish scales: COR. none, stamina twenty: CAL. of the female monophyllous and ciliated; amentum with oblong scales: COR. none, two germens, with two styles on each. The fruit is an angular nut. There are four species, viz. 1. C. betulus, or wych-hazel, a deciduous tree, much resembling the beech, native of Europe and America. As an underwood, it affords stakes and elders, fuel and charcoal. Its timber ranks with that of the beech and the sycamore; and the inner bark is said to be much used in Scandinavia to dye yellow. The only superior excellency of the horn-beam lies in its fitness for sheltering gardens, nurseries, and young plantations in winter. 2. C. ostrya, the hop horn-beam, a native of Italy and Virginia. This is of taller growth than the eastern kind, and will arrive to the height of twenty feet or more. 3. C. Virginiana. Common to this province of America; with lanceolate, pointed leaves, and very long cones. 4. C. duinensis; a native of Carniola; with the scales of its cones somewhat hearted, doubly toothed; female ament, ovate.

CARP'MEALS, *n. s.* A kind of coarse cloth made in the North of England.
Phillip's World of Words.

CARPOBALSAM, from καρπος, fruit, and βαλσαμος, balsam, in the materia medica, the fruit of the tree which yields the true oriental balsam. It is used in Egypt, in all the intentions in which the balsam itself is applied. The only use the Europeans make of it is in Venice treacle and mithridate; and in these not a great deal, for cubebs and juniper berries are generally substituted in its place.

CARPOCRATES, a heretic of the second century, who revived and added to the errors of Simon Magus, Menander, Saturninus, and other Gnostics. He owned, with them, one sole principle and father of all things, whose name as well as nature was unknown. The world, he taught, was created by angels, vastly inferior to the first principle. He opposed the divinity of Jesus Christ; making him a mere man, begotten of Mary by Joseph, though possessed of uncommon gifts which set him above other creatures. He inculcated a community of women.

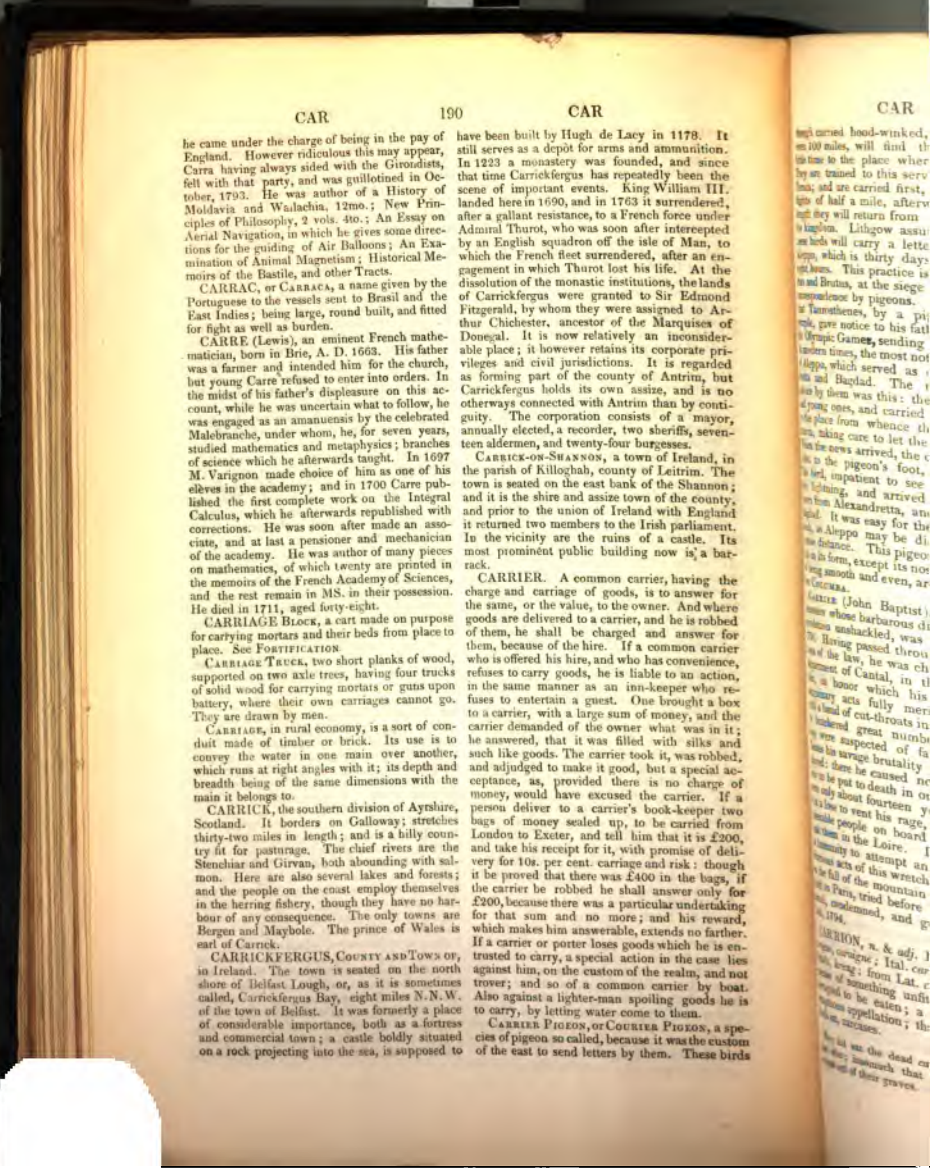
CARPOLITHI, or fruit-stone rocks of the Germans, are composed of a kind of jasper, of the nature of the amygdaloides, or almond stones. Bertrand asserts that the latter appear to be composed of elliptical pieces like petrified almonds, though in truth they are only small oblong pieces of calcareous stone rounded by attrition, and sometimes small muscle shells connected by a stony concretion. The name carpolithi, however, is given in general by writers on fossils to all stony concretions that resemble fruit of any kind.

CAR'PUS, *n. s.*, Lat., the wrist; so named by anatomists, which is made up of eight little bones, of different figures and thickness, placed in two ranks, four in each rank. They are strongly tied together by the ligaments which come from the radius, and by the annulary ligaments. See ANATOMY. *Quincy.*

I found one of the bones of the *carpus* lying loose in the wound. *Wiseman's Surgery.*

CARR (Sir John), a late travelling attorney, originally of Dorsetshire, who amused the public as a tourist, and in a celebrated trial for libel. His first publication was, The Stranger in France, 4to, 1803, which becoming popular was followed by A Tour round the Baltic, 1805; The Stranger in Ireland, 1806; A Tour through Holland, down the Rhine, &c. 1807; and A Tour through Scotland, 1809. In Ireland he was knighted by the lord lieutenant, a circumstance which, together with his general literary pretensions, became the topic of witty ridicule in My Pocket Book, or Hints for a Ryghte Merrie and Conceitede Tour, to be called The Stranger in Ireland. This jeu-d'esprit was foolishly enough made the ground of a prosecution for libel, in which the knight was unsuccessful. A small volume of Poems also bears Sir John Carr's name.

CARRA (John Lewis), a noted actor in the French revolution, was born at Pont de Vesles, in 1743, and bred to the law, but quitted that profession in pursuit of letters. Previous to the breaking out of the revolution, he travelled as far as Moldavia, and there became secretary to the hospodar. Returning to France about the beginning of the political ferment he became the publisher of a journal, entitled Les Annales Politiques et Litteraires, which was widely circulated, and procured Carra's appointment as one of the keepers of the national library; and he was afterwards nominated a member of the convention. He was distinguished by the keenness of his temper, and was employed as a commissioner to the army; but having, as was said, proposed to proscribe the Bourbon family and place the duke of York on the throne of France,



he came under the charge of being in the pay of England. However ridiculous this may appear, Carra having always sided with the Girondists, fell with that party, and was guillotined in October, 1793. He was author of a History of Moldavia and Walachia, 12mo.; New Principles of Philosophy, 2 vols. 4to.; An Essay on Aerial Navigation, in which he gives some directions for the guiding of Air Balloons; An Examination of Animal Magnetism; Historical Memoirs of the Bastile, and other Tracts.

CARRAC, or Carraca, a name given by the Portuguese to the vessels sent to Brasil and the East Indies; being large, round built, and fitted for fight as well as burden.

CARRE (Lewis), an eminent French mathematician, born in Brie, A. D. 1663. His father was a farmer and intended him for the church, but young Carre refused to enter into orders. In the midst of his father's displeasure on this account, while he was uncertain what to follow, he was engaged as an amanuensis by the celebrated Malebranche, under whom, he, for seven years, studied mathematics and metaphysics; branches of science which he afterwards taught. In 1697 M. Varignon made choice of him as one of his elèves in the academy; and in 1700 Carre published the first complete work on the Integral Calculus, which he afterwards republished with corrections. He was soon after made an associate, and at last a pensioner and mechanician of the academy. He was author of many pieces on mathematics, of which twenty are printed in the memoirs of the French Academy of Sciences, and the rest remain in MS. in their possession. He died in 1711, aged forty-eight.

CARRIAGE Block, a cart made on purpose for carrying mortars and their beds from place to place. See Fortification.

Carriage Truck, two short planks of wood, supported on two axle trees, having four trucks of solid wood for carrying mortars or guns upon battery, where their own carriages cannot go. They are drawn by men.

Carriage, in rural economy, is a sort of conduit made of timber or brick. Its use is to convey the water in one main over another, which runs at right angles with it; its depth and breadth being of the same dimensions with the main it belongs to.

CARRICK, the southern division of Ayrshire, Scotland. It borders on Galloway; stretches thirty-two miles in length; and is a hilly country fit for pasturage. The chief rivers are the Stenchiar and Girvan, both abounding with salmon. Here are also several lakes and forests; and the people on the coast employ themselves in the herring fishery, though they have no harbour of any consequence. The only towns are Bergen and Maybole. The prince of Wales is earl of Carrick.

CARRICKFERGUS, County and Town of, in Ireland. The town is seated on the north shore of Belfast Lough, or, as it is sometimes called, Carrickfergus Bay, eight miles N.N.W. of the town of Belfast. It was formerly a place of considerable importance, both as a fortress and commercial town; a castle boldly situated on a rock projecting into the sea, is supposed to have been built by Hugh de Lacy in 1178. It still serves as a depôt for arms and ammunition. In 1223 a monastery was founded, and since that time Carrickfergus has repeatedly been the scene of important events. King William III. landed here in 1690, and in 1763 it surrendered, after a gallant resistance, to a French force under Admiral Thurot, who was soon after intercepted by an English squadron off the isle of Man, to which the French fleet surrendered, after an engagement in which Thurot lost his life. At the dissolution of the monastic institutions, the lands of Carrickfergus were granted to Sir Edmond Fitzgerald, by whom they were assigned to Arthur Chichester, ancestor of the Marquises of Donegal. It is now relatively an inconsiderable place; it however retains its corporate privileges and civil jurisdictions. It is regarded as forming part of the county of Antrim, but Carrickfergus holds its own assize, and is no otherways connected with Antrim than by contiguity. The corporation consists of a mayor, annually elected, a recorder, two sheriffs, seventeen aldermen, and twenty-four burgesses.

Carrick-on-Shannon, a town of Ireland, in the parish of Killoghah, county of Leitrim. The town is seated on the east bank of the Shannon; and it is the shire and assize town of the county, and prior to the union of Ireland with England it returned two members to the Irish parliament. In the vicinity are the ruins of a castle. Its most prominent public building now is a barrack.

CARRIER. A common carrier, having the charge and carriage of goods, is to answer for the same, or the value, to the owner. And where goods are delivered to a carrier, and he is robbed of them, he shall be charged and answer for them, because of the hire. If a common carrier who is offered his hire, and who has convenience, refuses to carry goods, he is liable to an action, in the same manner as an inn-keeper who refuses to entertain a guest. One brought a box to a carrier, with a large sum of money, and the carrier demanded of the owner what was in it; he answered, that it was filled with silks and such like goods. The carrier took it, was robbed, and adjudged to make it good, but a special acceptance, as, provided there is no charge of money, would have excused the carrier. If a person deliver to a carrier's book-keeper two bags of money sealed up, to be carried from London to Exeter, and tell him that it is £200, and take his receipt for it, with promise of delivery for 10s. per cent. carriage and risk: though it be proved that there was £400 in the bags, if the carrier be robbed he shall answer only for £200, because there was a particular undertaking for that sum and no more; and his reward, which makes him answerable, extends no farther. If a carrier or porter loses goods which he is entrusted to carry, a special action in the case lies against him, on the custom of the realm, and not trover; and so of a common carrier by boat. Also against a lighter-man spoiling goods he is to carry, by letting water come to them.

Carrier Pigeon, or Courier Pigeon, a species of pigeon so called, because it was the custom of the east to send letters by them. These birds have been built by Hugh de Lacy in 1178. It still serves as a depòt for arms and ammunitio In 1223 a monastery was founded, and sinc that time Carrickfergus has repeatedly been the scene of important events. King William III landed here in 1690, and in 1763 it surrendered, after a gallant resistance, to a French force unde Admiral Thurot, who was soon after intercepted by an English squadron off the isle of Man, in which the French fleet surrendered, after an engagement in which Thurot lost his life. At the dissolution of the monastic institutions, the lands of Carrickfergus were granted to Sir Edward Fitzgerald, by whom they were assigned to Arthur Chichester, ancestor of the Marquises of Donegal. It is now relatively an inconsiderable place; it however retains its corporate privileges and civil jurisdictions. It is regarded as forming part of the county of Antrim, but Carrickfergus holds its own assize, and is no otherways connected with Antrim than by contiguity. The corporation consists of a mayor, annually elected, a recorder, two sheriffs, seventeen aldermen, and twenty-four burgesses.

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Carrier Pigeon, or Courier Pigeon, a species of pigeon so called, because it was the custom of the east to send letters by them. These birds though carried hood-winked, twenty, thirty, or even 100 miles, will find their way in a very little time to the place where they were bred. They are trained to this service in Turkey and Persia; and are carried first, while young, short flights of half a mile, afterwards more, till at length they will return from the farthest part of the kingdom. Lithgow assures us, that one of these birds will carry a letter from Babylon to Aleppo, which is thirty days' journey, in forty-eight hours. This practice is very ancient; Hirtius and Brutus, at the siege of Modena, held a correspondence by pigeons. And Ovid tells us, that Taurosthenes, by a pigeon stained with purple, gave notice to his father of his victory at the Olympic Games, sending it to him at Ægina. In modern times, the most noted were the pigeons of Aleppo, which served as couriers at Alexandretta and Bagdad. The manner of sending advice by them was this: they took pairs which had young ones, and carried them on horseback to the place from whence they wished them to return, taking care to let them have a full view. When the news arrived, the correspondent tied a billet to the pigeon's foot, and let her loose. The bird, impatient to see its young, flew off like lightning, and arrived at Aleppo in ten hours from Alexandretta, and in two days from Bagdad. It was easy for them to find their way back, as Aleppo may be discovered at an immense distance. This pigeon has nothing peculiar in its form, except its nostrils, which, instead of being smooth and even, are swelled and rough. See Columba.

Carrier (John Baptist), one of the many monsters whose barbarous disposition the French revolution unshackled, was born at Aurillac, in 1756. Having passed through the inferior functions of the law, he was chosen deputy for the department of Cantal, in the national convention, an honor which his denunciations and sanguinary acts fully merited. He was sent with a band of cut-throats into La Vendee, where he butchered great numbers, merely because they were suspected of favoring royalty. At Nantes his savage brutality was particularly displayed: there he caused no fewer than twenty-four to be put to death in one day, four of whom were only about fourteen years of age; and, as if at a loss to vent his rage, he forced crowds of miserable people on board covered barges, and sunk them in the Loire. It would be shocking to humanity to attempt an enumeration of the ferocious acts of this wretch and his savage crew: on the fall of the mountain party he was ordered back to Paris, tried before the revolutionary tribunal, condemned, and guillotined, December 15th, 1794.

CAR'RION, *n.* & *adj.* Fr. *charogne*; old Fr. *carogne*, *caroigne*; Ital. *carogna*; *Span. carrona*; Dutch, *kreng*; from Lat. *caro* and *rodens*. The carcase of something unfit for food; flesh too corrupted to be eaten; a reproachful and contemptuous appellation; that which relates to, or feeds on, carcases.

They did eat the dead *carrions*, and one another soon after; insomuch that the very carcases they scraped out of their graves. *Spenser on Ireland.*

It is I,
That, lying by the violets in the sun,
Do as the *carrion* does, not as the flower. *Shakspeare.*

This foul deed shall smell above the earth,
With *carrion* men groaning for burial. *Id.*

Shall we send that foolish *carrion*, Mrs. Quickly, to him, and excuse his throwing into the water? *Id.*

Match to match I have encountered him,
And made a prey for *carrion* kites, and crows,
Even of the bonny beast he loved so well. *Id.*

Not all the pride that makes thee swell,
As big as thou dost, blown up veal;
Nor all thy tricks and slights to cheat,
Sell all thy *carrion* for good meat. *Hudibras*

Sheep, oxen, horses fall; and heaped on high
The differing species in confusion lie;
Till, warned by frequent ills, the way they found
To lodge their loathsome *carrion* in the ground.
Dryden.

The wolves will get a breakfast by my death,
Yet scarce enough their hunger to supply;
For love has made me *carrion* ere I die. *Id.*

Criticks, as they are birds of prey, have ever a natural inclination to *carrion*. *Pope.*

The sexton's indignation moved
The mean comparison reproved,
Their undiscerning palate blamed,
Which two-legged *carrion* thus defamed. *Gay.*

For this was all thy caution!
For this, thy painful labours at the glass?
To' improve those charms, and keep them in repair,
For which the spoiler thanks thee not. Foul feeder!
Coarse fare and *carrion* please thee full as well. *Blair.*

Blest genius! who bestows his toil and pains
On each dull passage each dull book contains;
The toil more grateful, as the task more low:
So *carrion* is the quarry of a crow. *Mallet.*

CARROBALISTA, in the ancient military art, denotes a species of balista, mounted on wheels, and drawn by horses; by which, it differed from the manubalista, which being lesser and lighter, was drawn by the hand.

CARROCERUM, or Carrocium, in writers of the middle age, denotes the banner or chief flag of an army, which was mounted on a kind of chariot, and drawn by oxen.

CARRON, a river of Scotland, in Stirlingshire, which rises about the middle of the isthmus, between the friths of Forth and Clyde, and divides that country into two nearly equal parts. The whole length of its course from west to east is not above fourteen miles. It falls into the Frith of Forth about three miles north-east of Falkirk. There is no river in Scotland, and few in the whole island of Britain, whose banks have been the scenes of more memorable transactions; and latterly this stream has given name to the celebrated Carron iron works. See Stirlingshire.

CARRONADE, a short kind of ordnance, capable of carrying a large ball, and useful in close engagements at sea; so named from the Carron. See Gunnery.

CARROOR, or Caroor, a town and fort of Hindostan, in the Mysore. It was entered by general Meadows, in June, 1790, having been evacuated by the troops of Tippoo Sultan. It is sixty-five miles east by south of Coimbetore.

CARROSSA, a considerable town of Italy, in the late Italian republic, and department of the Adda, situated on the Po, opposite Piacenza, where general Buonaparte passed the Po with his army, almost without resistance, on the 7th of May, 1796.

CAR'ROT, *n.*
CAR'ROTINESS, *n.*
CAR'ROTY, *adj.*
Fr. *carotte*; barb. Lat. *carota*, supposed to be from *καρρίζα*, for *καῤῥ* *ῥίζα*, the yellow root; an esculent root, of an orange color. Carrotiness and carroty are applied to red hair, from the resemblance which its color bears to that of the vegetable.

Carrots, though garden roots, yet they do well in the fields for seed. *Mortimer.*

His spouse orders the sack to be immediately opened, and greedily pulls out of it half a dozen bunches of *carrots*. *Dennis.*

If the potatoe's taste delights,
Or the red *carrots'* sweet invites,
Indulge thy morn and evening hours,
But let due care regard my flowers. *Gay.*

CARROT, in botany. See DAUCUS.

CAR'ROWS, *n.* an Irish word, which the quotation from Spenser fully defines.

The *carrows* are a kind of people that wander up and down to gentlemen's houses, living only upon cards and dice; who, though they have little or nothing of their own, yet will they play for much money. *Spenser on Ireland.*

CARRUCA, from carrus, Lat., in antiquity, a splendid kind of car or chariot, mounted on four wheels, richly decorated with gold, silver, ivory, &c., in which the emperors, senators, &c., were carried. Carruca is also used in writers of the middle age, for plough; and sometimes for Carrucate.

CARRUCAGE, carucagium, a kind of tax anciently imposed on every plough. It also denotes, in husbandry, the ploughing of ground, either ordinary, as for grain, hemp, and flax; or extraordinary, as for woad, dyer's weed, rape, and the like.

CARRUCATE, carrucata, in our ancient laws, a plough-land, or as much arable ground as can be tilled in a year with one plough. In Doomsday Inquisition, the arable land is estimated in carrucates, the pasture in hides, and meadow in acres.

CA'RRY, *v. a.* & *n.*
CA'RRIAGE, *n.*
CA'RRIER, *n.*
CA'RRY-TALE, *n.*
Fr. *charier*; from Lat. *currus*, says Dr. Johnson. In Span. *accarear* signifies to carry or convey something in a cart, or other carriage. But Serenius refers the origin of the word to Sw. *köra* (pronounced *kura*), to carry, to drive; *kerra*; a vehicle; Goth. *kera*. The verb to carry is of such various signification, that, after having explained the words springing from it, we shall give Dr. Johnson's definitions, with some additional authorities; as to alter them would, in this case, be merely to make a change without effecting an improvement.

Carriage denotes the act of carrying; conquest or acquisition, but this meaning is now obsolete, although we still say the enemy carried the place; a vehicle; a frame for holding cannon; behaviour; personal manners; conduct, practices, and manner of transacting; which last sense, also, is now obsolete. A carrier is whatever carries, but is chiefly used to mark one whose trade it is to convey goods for others. It is likewise the distinctive name of a species of pigeon, which is taught to carry letters, and whose services, once devoted to lovers and friends, are now chiefly employed by the boxing and gambling tribe. What a carry-tale is, every one's experience has enabled him to define and despise.

The unequal agitation of winds, though material to the *carriage* of sounds farther or less way, yet do not confound the articulation. *Bacon.*

Before his eyes he did cast a mist, by his own insinuations, and by the *carriage* of his youth, that expressed a natural princely behaviour. *Id.*

The manner of *carriage* of the business, was as if there had been secret inquisition upon him. *Id.*

You must distinguish between the motion of the air, which is but a vehiculum causæ, a *carrier* of the sounds, and the sounds conveyed. *Id.*

You may hurt yourself; nay, utterly
Grow from the king's acquaintance by this *carriage*. *Shakspeare.*

Solyman resolved to besiege Vienna, in good hope that, by the *carriage* away of that, the other cities would without resistance be yielded. *Knolles.*

He commanded the great ordnance to be laid upon *carriages*, which before lay bound in great unwieldy timber. *Id.*

There are tame and wild pigeons; and of tame there are croppers, *carriers*, runts. *Walton.*

He advised the new governor to have so much discretion in his *carriage*, that there might be no notice taken of the exercise of his religion. *Clarendon.*

If it seem so strange to move this obelisk for so little space, what may we think of the *carriage* of it out of Egypt? *Wilkins.*

Though in my face there's no affected frown,
Nor in my *carriage* a feigned niceness shown,
I keep my honour still without a stain. *Dryden.*

For winds, when homeward they return, will drive
The loaded *carriers* from their evening hive. *Id.*

The welcome news is in the letter found;
The *carrier's* not commissioned to expound;
It speaks itself. *Id.*

Let them have ever so learned lectures of breeding, that which will most influence their *carriage* will be the company they converse with, and the fashion of those about him. *Locke.*

The roads are crowded with *carriers*, laden with rich manufactures. *Swift.*

A *carrier* every night and morn
Would see his horses eat their corn;
This sunk the hostler's vails, 'tis true,
But then his horses had their due. *Gay.*

What horse or *carriage* can take up and bear away all the loppings of a branchy tree at once. *Watts.*

We shall now proceed to the verb, which in its active and neuter states, has nearly forty different shades of meaning. To carry is, to convey from a place; opposed to bring, or convey *to* a place; often with a particle, signifying departure, as *away*, *off*.

When he dieth he shall *carry* nothing *away*. *Psalm* xlix. 18.

And devout men *carried* Stephen to his burial. *Acts*, viii. 2.

I mean to *carry* her away this evening by the help of these two soldiers. *Dryden's Spanish Friar*

As in a hive's vimineous dome,
Ten thousand bees enjoy their home;
Each does her studious action vary,
To go and come, to fetch and *carry*. *Prior.*

They exposed their goods with the price marked, then retired, the merchants came, left the price which though carried hood-winked, twenty, thirty, or even 100 miles, will find their way in a very little time to the place where they were bred. They are trained to this service in Turkey and Persia; and are carried first, while young, short flights of half a mile, afterwards more, till at length they will return from the farthest part of the kingdom. Lithgow assures us, that one of these birds will carry a letter from Babylon to Aleppo, which is thirty days' journey, in forty-eight hours. This practice is very ancient; Hirtius and Brutus, at the siege of Modena, held a correspondence by pigeons. And Ovid tells us, that Taurosthenes, by a pigeon stained with purple, gave notice to his father of his victory at the Olympic Games, sending it to him at Ægina. In modern times, the most noted were the pigeons of Aleppo, which served as couriers at Alexandretta and Bagdad. The manner of sending advice by them was this: they took pairs which had young ones, and carried them on horseback to the place from whence they wished them to return, taking care to let them have a full view. When the news arrived, the correspondent tied a billet to the pigeon's foot, and let her loose. The bird, impatient to see its young, flew off like lightning, and arrived at Aleppo in ten hours from Alexandretta, and in two days from Bagdad. It was easy for them to find their way back, as Aleppo may be discovered at an immense distance. This pigeon has nothing peculiar in its form, except its nostrils, which, instead of being smooth and even, are swelled and rough. See COLUMBA.

CARRIER (John Baptist), one of the many monsters whose barbarous disposition the French revolution unshackled, was born at Aurillac, in 1756. Having passed through the inferior functions of the law, he was chosen deputy for the department of Cantal, in the national convention, an honor which his denunciations and sanguinary acts fully merited. He was sent with a band of cut-throats into La Vendee, where he butchered great numbers, merely because they were suspected of favoring royalty. At Nantes his savage brutality was particularly displayed: there he caused no fewer than twenty-four to be put to death in one day, four of whom were only about fourteen years of age; and, as if at a loss to vent his rage, he forced crowds of miserable people on board covered barges, and sunk them in the Loire. It would be shocking to humanity to attempt an enumeration of the ferocious acts of this wretch and his savage crew: on the fall of the mountain party he was ordered back to Paris, tried before the revolutionary tribunal, condemned, and guillotined, December 15th, 1794.

CAR'RION, *n.* & *adj.* Fr. *charogne*; old Fr. *charoigne*, *caroigne*; Ital. *carogna*; *Span. carrona*; Dutch, *kreng*; from Lat. *caro* and *rodens*. The carcase of something unfit for food; flesh too corrupted to be eaten; a reproachful and contemptuous appellation; that which relates to, or feeds on, carcases.

They did eat the dead *carrions*, and one another soon after; insomuch that the very carcases they scraped out of their graves. *Spenser on Ireland.*

It is I,
That, lying by the violets in the sun,
Do as the *carrion* does, not as the flower. *Shakspeare.*

This foul deed shall smell above the earth,
With *carrion* men groaning for burial. *Id.*

Shall we send that foolish *carrion*, Mrs. Quickly, to him, and excuse his throwing into the water? *Id.*

Match to match I have encountered him,
And made a prey for *carrion* kites, and crows,
Even of the bonny beast he loved so well. *Id.*

Not all the pride that makes thee swell,
As big as thou dost, blown up veal;
Nor all thy tricks and slights to cheat,
Sell all thy *carrion* for good meat. *Hudibras*

Sheep, oxen, horses fall; and heaped on high
The differing species in confusion lie;
Till, warned by frequent ills, the way they found
To lodge their loathsome *carrion* in the ground.
Dryden.

The wolves will get a breakfast by my death,
Yet scarce enough their hunger to supply;
For love has made me *carrion* ere I die. *Id.*

Criticks, as they are birds of prey, have ever a natural inclination to *carrion*. *Pope.*

The sexton's indignation moved
The mean comparison reproved,
Their undiscerning palate blamed,
Which two-legged *carrion* thus defamed. *Gay.*

For this was all thy caution?
For this, thy painful labours at the glass?
To' improve those charms, and keep them in repair,
For which the spoiler thanks thee not. Foul feeder!
Coarse fare and *carrion* please thee full as well. *Blair.*

Blest genius! who bestows his toil and pains
On each dull passage each dull book contains;
The toil more grateful, as the task more low:
So *carrion* is the quarry of a crow. *Mallet.*

CARROBALISTA, in the ancient military art, denotes a species of balista, mounted on wheels, and drawn by horses; by which, it differed from the manubalista, which being lesser and lighter, was drawn by the hand.

CARROCERUM, or CARROCIUM, in writers of the middle age, denotes the banner or chief flag of an army, which was mounted on a kind of chariot, and drawn by oxen.

CARRON, a river of Scotland, in Stirlingshire, which rises about the middle of the isthmus, between the friths of Forth and Clyde, and divides that country into two nearly equal parts. The whole length of its course from west to east is not above fourteen miles. It falls into the Frith of Forth about three miles north-east of Falkirk. There is no river in Scotland, and few in the whole island of Britain, whose banks have been the scenes of more memorable transactions; and latterly this stream has given name to the celebrated Carron iron works. See STIRLINGSHIRE.

CARRONADE, a short kind of ordnance, capable of carrying a large ball, and useful in close engagements at sea; so named from the Carron. See GUNNERY.

CARROOR, or CAROOR, a town and fort of Hindostan, in the Mysore. It was entered by general Meadows, in June, 1790, having been evacuated by the troops of Tippoo Sultan. It is sixty-five miles east by south of Coimbetore.

CARROSSA, a considerable town of Italy, in the late Italian republic, and department of the Adda, situated on the Po, opposite Piacenza, To contain; to comprise.

He thought it *carried* something of an argument in it, to prove that doctrine. *Watts on the Mind.*

To have annexed; to have anything joined: with the particle *with*.

There was a righteous and a searching law, directly forbidding such practices; and they knew that it *carried with* it the divine stamp. *South.*

The obvious portions of extension that affect our senses, *carry with* them into the mind the idea of finite. *Locke.*

To convey or bear anything united or adhering, by communication of motion.

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To receive; to endure: not in use.

Some have in readiness so many odd stories, as there is nothing but they can wrap it into a tale, to make others *carry* it with more pleasure. *Bacon.*

To convey by means of something supporting.

Carry camomile, or wild thyme, or the green strawberry, upon sticks, as you do hops upon poles. *Bacon's Nat. Hist.*

To bear, as trees.

Set them a reasonable depth, and they will *carry* more shoots upon the stem. *Bacon's Nat. Hist.*

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France will not consent to furnish us with money sufficient to *carry on* the war. *Temple.*

To carry through. To support; to keep from falling, or being conquered.

That grace will *carry* us if we do not wilfully betray our succours, victoriously *through* all difficulties. *Hammond.*

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CART, *v.* & *n.* CA'RTAGE, *n.* CA'RTER, *n.* CA'RTERLY, *n.* CA'RTFUL, *n.* CA'RT-HORSE, *n.* CA'RT-JADE, *n.* CA'RT-LOAD, *n.* CA'RT-ROPE, *n.* CA'RT-RUT, *n.* CA'RT-WAY, *n.* CA'RT-WHEEL, *n.* CA'RT-WRIGHT, *n.*	Ang.-Sax. *cræt*, *craf*; Welsh, *cart*; Fr. *charette*; Lat. *carrus*. In its most extensive signification, cart is a carriage in general, and formerly cart and carter were used for chariot and charioteer. Cart is now almost uniformly applied to a two-wheeled carriage, for the conveyance of goods, the driver of which is a carman. To

cart is to load a cart, and to expose in such a vehicle, as a punishment. The fatal cart is the vehicle in which criminals are conveyed to execution. Cartage is the employment, or hire, of of a cart; and carterly is rude, like a carter. The meaning of the compounds is sufficiently obvious.

And right at entring of the townes end,
To which this Sompnour shope him for to wende,
They saw a *cart*, that charged was with hay,
Which that a *carter* drove forth on his way;
Depe was the way; for which the *carte* stood;
The *carter* smote and cried as he were wood
Heit scot, heit brok, what space for the stones?
Chaucer. Cant. Tales.

Alas! what weights are these that load my heart!
I am as dull as winter-starved sheep,
Tired as a jade in overloaded *cart*. *Sidney.*

Full thirty times has Phœbus' *cart* gone round
Neptune's salt wash, and Tellus' orbed ground;
And thirty dozen moons, with borrowed sheen,
About the world have times twelve thirties been;
Since love our hearts, and Hymen did our hands
Unite commutual in most sacred bands. *Shakspeare.*

Let me be no assistant for a state,
But keep a farm and *carters*. *Id.*

It was determined that these sick and wounded soldiers should be carried on the *cart-horses*. *Knolles.*

Democritus ne'er laughed so loud
To see bawds *carted* through the crowd. *Hudibras.*

Now while my friend, just ready to depart,
Was packing all his goods in one poor *cart*,
He stopped a little. *Dryden.*

Carter and host confronted face to face. *Id.*

The squire, whose good grace was to open the scene,
Now fitted the altar, now traversed the *cart*,
And often took leave, but was loath to depart. *Prior.*

She chuckled when a bawd was *carted*;
And thought the nation ne'er would thrive,
Till all the whores were burnt alive. *Id.*

Let Wood and his accomplices travel about a country with *cart* loads of their ware, and see who will take it. *Swift.*

Oh happy streets! to rumbling wheels unknown,
No *carts*, no coaches, shake the floating town! *Gay.*

Oxen are not so good for draught, where you have occasion to *cart* much, but for winter ploughing. *Mortimer.*

CART. In London and Westminster, carts shall not carry more than twelve sacks of meal, 750 bricks, one chaldron of coals, &c. on pain of forfeiting one of the horses. Carmen are forbidden to ride either on their carts or horses. They are to lead or drive them on foot through the streets, on the forfeiture of ten shillings. Stat. 1 Geo. I., cap. 57.

CARTE (Thomas), the historian, was the son of Mr. Samuel Carte, prebendary of Litchfield, and born in 1686. He was reader in the abbey-church at Bath; and, on the accession of the house of Hanover, he refused to take the oaths and put on a lay habit. He is said to have acted as secretary to bishop Atterbury before his troubles; and in 1722, being accused of high treason, a reward of £1000 was offered for apprehending him: but queen Caroline, the patroness of learned men, obtained leave for him to return home in security. He published, 1. An edition of Thuanus, in 7 vols. folio. 2. The Life of the first Duke of Ormond, 3 vols. folio. 3. The History of England, 4 vols. folio. 4. A Collection of Original Letters and Papers concerning the Affairs of England, 2 vols. 8vo; and some other works. He died in April, 1754. His History of England ends in 1654. His design was to have brought it down to the Revolution; for which purpose he had taken great pains in copying every thing valuable that could be met with in England, Scotland, France, Ireland, &c He had a series of Memoirs, from the beginning to the end of Charles IId's reign. At his death, all his papers fell into the hands of his widow, and are now deposited in the Bodleian library, having been delivered by Mr. Jernegan, her second husband, to the university, 1778, for a valuable consideration. Whilst they were in this gentleman's possession, the earl of Hardwicke paid £200 for the perusal of them. For a consideration of £300, Mr Macpherson had the use of them; and from these and otner materials compiled his History and State Papers. It is not generally known that this ingenious individual was the original founder of the City Library connected with the corporation of London. Mr. Carte's first prospectus was published in 1743

CARTE BLANCHE, Fr. A blank paper; a paper to be filled up with such conditions as the person to whom it is sent thinks proper.

CARTEL, *n. s.* Fr. *cartel*; Ital. *cartello*. A writing containing, for the most part, stipulations between enemies; anciently any public paper.

They flatly disavouch
To yield him more obedience, or support;
And as to perjured duke of Lancaster,
Their *cartel* of defiance, they prefer.
Daniel's Civil War.

As this discord among the sisterhood is likely to engage them in a long and lingering war, it is the more necessary that there should be a *cartel* settled among them. *Addison's Freeholder.*

CARTEL SHIP, a ship commissioned in time of war to exchange the prisoners of two hostile powers; also to carry any proposal from the one to the other. The officer who commands her must carry no cargo, ammunition, or implements of war, except a single gun for signals.

CARTERET, a maritime county of North

To contain; to comprise.

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CA'RT-WHEEL, *n.*
CA'RT-WRIGHT, *n.*

Ang.-Sax. *cræt*, *cræt*; Welsh, *cart*; Fr. *charette*; Lat. *carrus*. In its most extensive signification, cart is a carriage in general, and formerly cart and carter were used for chariot and charioteer. Cart is now almost uniformly applied to a two-wheeled carriage, for the conveyance of goods, the driver of which is a carman. To cart is to load a cart, and to expose in such a vehicle, as a punishment. The fatal cart is the vehicle in which criminals are conveyed to execution. Cartage is the employment, or hire, of of a cart; and carterly is rude, like a carter. The meaning of the compounds is sufficiently obvious.

And right at entring of the townes end,
To which this Sompnour shope him for to wende,
They saw a *cart*, that charged was with hay,
Which that a *carter* drove forth on his way;
Depe was the way; for which the *carte* stood;
The *carter* smote and cried as he were wood
Heit scot, heit brok, what space for the stones?
Chaucer. Cant. Tales.

Alas! what weights are these that load my heart!
I am as dull as winter-starved sheep,
Tired as a jade in overloaded *cart*. *Sidney.*

Full thirty times has Phœbus' *cart* gone round
Neptune's salt wash, and Tellus' orbed ground;
And thirty dozen moons, with borrowed sheen,
About the world have times twelve thirties been;
Since love our hearts, and Hymen did our hands
Unite commutual in most sacred bands. *Shakspeare.*

Let me be no assistant for a state,
But keep a farm and *carters*. *Id.*

It was determined that these sick and wounded soldiers should be carried on the *cart-horses*. *Knolles.*

Democritus ne'er laughed so loud
To see bawds *carted* through the crowd. *Hudibras.*

Now while my friend, just ready to depart,
Was packing all his goods in one poor *cart*,
He stopped a little. *Dryden.*

Carter and host confronted face to face. *Id.*

The squire, whose good grace was to open the scene,
Now fitted the altar, now traversed the *cart*,
And often took leave, but was loath to depart. *Prior.*

She chuckled when a bawd was *carted*;
And thought the nation ne'er would thrive,
Till all the whores were burnt alive. *Id.*

Let Wood and his accomplices travel about a country with *cart* loads of their ware, and see who will take it. *Swift.*

Oh happy streets! to rumbling wheels unknown,
No *carts*, no coaches, shake the floating town! *Gay.*

Oxen are not so good for draught, where you have occasion to *cart* much, but for winter ploughing. *Mortimer.*

CART. In London and Westminster, carts shall not carry more than twelve sacks of meal, 750 bricks, one chaldron of coals, &c. on pain of forfeiting one of the horses. Carmen are forbidden to ride either on their carts or horses. They are to lead or drive them on foot through the streets, on the forfeiture of ten shillings. Stat. 1 Geo. I., cap. 57.

CARTE (Thomas), the historian, was the son of Mr. Samuel Carte, prebendary of Litchfield, and born in 1686. He was reader in the abbey-church at Bath; and, on the accession of the house of Hanover, he refused to take the oaths and put on a lay habit. He is said to have acted as secretary to bishop Atterbury before his troubles; and in 1722, being accused of high treason, a reward of £1000 was offered for apprehending him: but queen Caroline, the patroness of learned men, obtained leave for him to return home in security. He published, 1. An edition of Thuanus, in 7 vols. folio. 2. The Life of the first Duke of Ormond, 3 vols. folio. 3. The History of England, 4 vols. folio. 4. A Collection of Original Letters and Papers concerning the Affairs of England, 2 vols. 8vo; and some other works. He died in April, 1754. His History of England ends in 1654. His design was to have brought it down to the Revolution; for which purpose he had taken great pains in copying every thing valuable that could be met with in England, Scotland, France, Ireland, &c He had a series of Memoirs, from the beginning to the end of Charles IId's reign. At his death, all his papers fell into the hands of his widow, and are now deposited in the Bodleian library, having been delivered by Mr. Jernegan, her second husband, to the university, 1778, for a valuable consideration. Whilst they were in this gentleman's possession, the earl of Hardwicke paid £200 for the perusal of them. For a consideration of £300, Mr Macpherson had the use of them; and from these and other materials compiled his History and State Papers. It is not generally known that this ingenious individual was the original founder of the City Library connected with the corporation of London. Mr. Carte's first prospectus was published in 1743

CARTE BLANCHE, Fr. A blank paper; a paper to be filled up with such conditions as the person to whom it is sent thinks proper.

CAR'TEL, *n. s.* Fr. *cartel*; Ital. *cartello*. A writing containing, for the most part, stipulations between enemies; anciently any public paper.

They flatly disavouch
To yield him more obedience, or support;
And as to perjured duke of Lancaster,
Their *cartel* of defiance, they prefer.
Daniel's Civil War.

As this discord among the sisterhood is likely to engage them in a long and lingering war, it is the more necessary that there should be a *cartel* settled among them. *Addison's Freeholder.*

CARTEL SHIP, a ship commissioned in time of war to exchange the prisoners of two hostile powers; also to carry any proposal from the one to the other. The officer who commands her must carry no cargo, ammunition, or implements of war, except a single gun for signals.

CARTERET, a maritime county of North

Carolina, in the district of Newbern, bounded on the south by Core Sound; north by Craven; east and north-east by Pamlico Sound and Neus River; and on the west by Onslow county. The chief town is Beaufort.

CARTES (Rene Des), one of the most eminent philosophers and mathematicians in the seventeenth century. He was descended of an ancient family in Touraine, in France, and born 31st of March 1596. At the Jesuits' college at La Fleche, he made a very great progress in the learned languages and polite literature, and became acquainted with Father Mersenne. He was originally designed for the army; but his constitution not permitting him to expose himself to its fatigues, he was sent to Paris, where he launched into gaming, and had prodigious success. Here Mersenne persuaded him to return to study; which he pursued till he went to Holland, in May 1616, when he engaged as a volunteer in the service of the prince of Orange. While he was in garrison at Breda, he wrote a Treatise on Music, and laid the foundation of several of his works. He was at the siege of Rochelle in 1628; returned to Paris; and a few days after his return, at an assembly of men of learning, in the house of Monsignor Bagni, the pope's nuncio, was prevailed upon to explain his sentiments with regard to philosophy, when the nuncio urged him to publish his system. Upon this he went to Amsterdam, and from thence to Franeker, where he began his Metaphysical Meditations, and drew up his Discourse on Meteors. He made a short tour to England; and, in the neighbourhood of London, made some observations concerning the declination of the magnet. He returned to Holland, where he finished his Treatise on the World. His books made a great noise in France; and in Holland his system bid fair to discard the old philosophy. Voetius, being rector of the university of Utrecht, procured his philosophy to be prohibited, and wrote against him; but he immediately published a vindication of it. In 1647 he returned to France, where the king settled a pension of 3000 livres upon him. Christiana, queen of Sweden, invited him into that kingdom, received him with the greatest civility, and engaged him to attend her every morning at five o'clock, to instruct her in philosophy. She also desired him to revise and digest all his unpublished writings, and to form a complete body of philosophy from them. She likewise proposed to allow him a revenue, and to form an academy, of which he was to be the director. But these designs were frustrated by his death in 1650. His body was interred at Stockholm, and seventeen years afterwards removed to Paris, where a magnificent monument was erected to him in the church of St. Genevieve du Mont. Dr. Halley, in a paper concerning optics, observes, that though some of the ancients mention refraction as an effect of transparent mediums, Des Cartes was the first who discovered the laws of refraction, and reduced dioptrics to a science. His philosophy, it is well known, has given way to the more accurate discoveries and demonstrations of the Newtonian system. See ASTRONOMY.

CARTHAGE, a celebrated city of antiquity, the capital of Africa Propria; and which for many years disputed with Rome the sovereignty of the world. According to Velleius Paterculus, this city was built sixty-five, according to Justin and Trogus twelve, according to others 100 or 140 years, before the foundations of Rome were laid. It is on all hands agreed that the Phœnicians were the founders. It was situated on a peninsula of the Mediterranean, thirty-six miles north-west of Tunis, and 352 east of Algiers; directly opposite to Rome.

At the third Punic war, Carthage appears to have been one of the first cities in the world. It was no less than 360 stadia, or forty-five miles in circumference, and was joined to the continent by an isthmus, twenty-three stadia or three miles and a furlong in breadth. On the west side projected a long tract of land half a stadium broad; which, shooting out into the sea, separated it from a lake or morass, and was strongly fortified on all sides by rocks and a single wall. In the middle of the city stood the citadel of Byrsa, having on the top of it a temple sacred to Æsculapius, seated upon rocks on a very high hill, to which the ascent was by sixty steps. On the south side the city was surrounded by a triple wall thirty cubits high; flanked all round by parapets and towers, at equal distances of 480 feet. Every tower had its foundation sunk thirty-two feet deep, and was four stories high, though the walls were but two: they were arched; and in the lower part, corresponding in depth with the foundations above mentioned, were stalls large enough to hold 300 elephants with their fodder, &c. Over these were stalls and other conveniences for 4000 horses; and there was likewise room for lodging 20,000 foot and 4000 cavalry, without incommoding the inhabitants. There were two harbours, which had one common entrance seventy feet broad, and shut up with chains. The first was appropriated to the merchants; and included in it a vast number of places of refreshment, and all kinds of accommodations for seamen. The second, as well as the island of Cothon, in the midst of it, was lined with large keys, in which were receptacles for sheltering 220 ships of war. Over these were magazines of all sorts of naval stores. The entrance into each of these receptacles was adorned with two marble pillars of the Ionic order; so that both the harbour and island represented on each side two magnificent galleries. Near this island was a temple of Apollo, in which was a statue of the god, of massy gold; and the inside of the temple all lined with plates of the same metal, weighing 1000 talents. The city was twenty-three miles in circumference, and contained 700,000 inhabitants. Of their power we may have some idea, by the quantity of arms they delivered up to the Roman consuls. The whole army was astonished with the long train of carts loaded with them, which were thought sufficient to have armed all Africa. On this occasion there were put into the hands of the Romans 2000 catapultæ, 200,000 complete suits of armour, with an innumerable quantity of swords, darts, javelins, arrows, and beams armed with iron, which were thrown from the ramparts by the balistæ.

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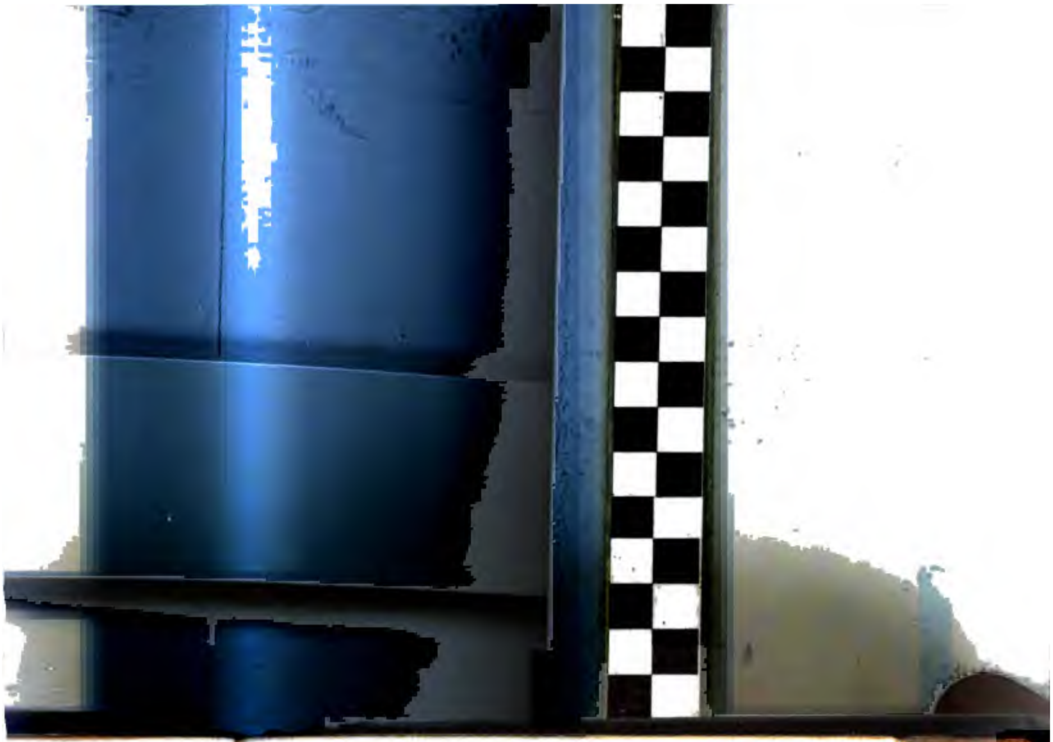
The beginning of the Carthaginian history, like that of most other nations, is obscure and uncertain. In the seventh year of Pygmalion, king of Tyre, his sister Elisa, or Dido, is said to have fled, with some of her companions and vassals, from the cruelty and avarice of her brother Sichæus. She first touched at the island of Cyprus, where she met with a priest of Jupiter, who was desirous of attending her, to which she readily consented, and fixed the priesthood in his family. At that time it was a custom in the island of Cyprus, for the young women to go on certain stated days, before marriage, to the sea side, to look for strangers, that might possibly arrive on their coasts, in order to prostitute themselves for gain, that they might thereby acquire a dowry. Out of these the Tyrians selected eighty, whom they carried along with them. From Cyprus they sailed directly for the coast of Africa, and at last safely landed in the province called Africa Propria, not far from Utica. The inhabitants received their countrymen with great joy, and invited them to settle among them. The common fable is, that the Phœnicians imposed upon the Africans in the following manner:—They desired, for their intended settlement, only as much ground as an ox's hide would encompass. This request the Africans laughed at; but were surprised, when, upon their granting it, they saw Elisa cut the hide into the smallest shreds, by which means it surrounded a large territory; in which she built the citadel called Byrsa. The learned, however, are now unanimous in exploding this fable; and it is certain that the Carthaginians for many years paid an annual tribute to the Africans for the ground they possessed. The new city soon became populous and flourishing, by the accession of the neighbouring Africans, who came thither at first with a view to traffic. In a short time it became so considerable, that Iarbas, a neighbouring prince, thought of making himself master of it without any effusion of blood. In order to this, he desired that an embassy of ten of the most noble Carthaginians might be sent him; and, upon their arrival, proposed to them a marriage with Dido, threatening war in case of a refusal. The ambassadors, being afraid to deliver this message, told the queen that Iarbas desired some person might be sent him who was capable of civilising his Africans; but that there was no possibility of finding any of her subjects, who would leave his relations for the conversion of such barbarians. For this they were reprimanded by the queen, who told them that they ought to be ashamed of refusing to live in any manner for the benefit of their country. They now informed her, therefore, of the true nature of their message from Iarbas; and that, according to her own decision, she ought to sacrifice herself for the good of her country. The unhappy queen, rather than submit to be the wife of such a barbarian, caused a funeral pile to be erected, and put an end to her life with a dagger. This is Justin's account of the death of queen Dido, and is the most probable; Virgil's story of her amour with Æneas being considered fabulous, even in the days of Macrobius. The Punic archives being destroyed by the Romans, there is now a chasm in the Carthaginian history for above 300 years. It appears, however, that, from the beginning, the Carthaginians applied themselves to maritime affairs, and were formidable by sea in the time of Cyrus and Cambyses. From Diodorus Siculus and Justin it also appears, that the principal support of the Carthaginians were the mines of Spain, in which country they seem to have established themselves very early. Justin insinuates, that the first Carthaginian settlement in Spain happened when the city of Gades, now Cadiz, was in its infancy.

About the year before Christ 503 the Carthaginians entered into a treaty with the Romans. It related chiefly to matters of navigation and commerce. From it we learn that the whole island of Sardinia, and part of Sicily, were then subject to Carthage; that they were very well acquainted with the coasts of Italy; and that, even at this early period, a spirit of jealousy had arisen between the two republics. About this period the Carthaginians wished to discontinue the tribute they had hitherto paid the Africans, for the ground on which their city stood. But, notwithstanding all their power, they were obliged to conclude a peace, one of tha articles of which was, that the tribute should be continued. By degrees they extended their power over all the islands in the Mediterranean, Sicily excepted; and for the conquest of this they made preparations, about A.A.C. 480. Their army consisted of 300,000 men; their fleet of upwards of 2000 men of war, and 3000 transports. Hamilcar, their general, having landed their numerous forces, attacked Himera, a city of considerable importance, but was at last assaulted in his trenches by Gelon and Theron, the tyrants of Syracuse and Agrigentum, who gave the Carthaginians one of their greatest overthrows: 150,000 were killed in the battle and pursuit, we are told, and all the rest taken prisoners; and of their 2000 ships of war and 3000 transports, eight ships only, which then happened to be out at sea, escaped. These sailed for Carthage, but were cast away, and every soul perished, except a few who were saved in a boat, and at last reached Carthage with the dismal news of the total loss of the fleet and army. No words can express the consternation of the city upon receiving the news of this disaster. Ambassadors were despatched to Sicily, with orders to conclude a peace upon any terms. They are said to have prostrated themselves before Gelon, and with tears to have entreated him to receive their city into favor. He granted their request, upon condition that Carthage should pay him 2000 talents of silver, that they should build two temples, where the articles of the treaty should be deposited, and that for the future they should abstain from human sacrifices. The Carthaginians complimented his wife Demarata with a crown of gold worth a 100 talents. From this time little mention is made of the Carthaginians for seventy years. They, however, gradually extended their dominions in Africa, shook off the tribute which gave them so much uneasiness, and went to war with the Cyrenians in this interval. At last two brothers, called Philæni, were sent out for Carthage, who, partly by their superior celerity and still more by their uncommon patriotism, gained a large extent of territory to Carthage. See PHILÆNI. About A. A. C. 412, Hannibal was appointed to assist the Egestines, a Sicilian people, against the Selinuntines, and having landed his forces he immediately marched for Selinus. In his way he took Emporium. Selinus made a vigorous defence, but at last the city was taken by storm; about 16,000 of the inhabitants being massacred: the temples were plundered, and the city rased to the ground. Hannibal next laid siege to Himera, wishing to revenge the death of his grandfather Hamilcar, who had been slain here by Gelon. Finding his battering engines not to answer his purpose, he undermined the wall with large beams of timber, to which he set fire, and thus laid it flat on the ground. At last he became master of the place, and treated it as he had done Selinus. The Carthaginians were now so much elated, that they meditated the reduction of the whole island. But age and infirmities advanced upon Hannibal; all Sicily was alarmed; and the principal cities were put into the best state of defence. The Carthaginians first marched to Agrigentum, and began to batter the walls with great fury, but were defeated by a reinforcement of other Syracusans, and forced to retreat under the walls of Agrigentum with the loss of 6000 men. They finally, however, took the place, and immense booty was found in it. Their next attempt was upon Gela, to the assistance of which Dionysius came, with an army of 50,000 foot, and 1000 horse. With these he attacked the Carthaginian camp, but was repulsed with loss, and sent a trumpet to Imilcar to desire a cessation of arms, in order, as was pretended, to bury the dead, but in reality to give the people of Gela an opportunity to escape. Most of the citizens left the place in the night, and Dionysius, with the army, followed them. The Carthaginians finding the city deserted by most of its inhabitants, immediately entered it, putting to death all who remained; after which, Imilcar, having plundered it, moved towards Camarina: but the inhabitants of this city had likewise been drawn off by Dionysius, and it underwent the same fate with Gela. Imilcar now finding his army weakened by these exertions, and by a plague which broke out in it, sent a herald to Syracuse to offer terms of peace. The Carthaginians, besides their ancient acquisitions in Sicily, were, according to this proposal, to possess the countries of the Silicani, the Selinuntines, the Himereans, and Agrigentines; the people of Gela and Camarina to be permitted to reside in their respective cities, upon paying an annual tribute to the Carthaginians; and the other Sicilians to preserve their independence. The Syracusans were to remain under Dionysius. That tyrant concluded this peace only to gain time, and to put himself in a condition to attack the Carthaginian territories with greater force. Immediately afterwards he gave up to the fury of the populace the persons and possessions of the Carthaginians who resided in Syracuse. Their ships, which were then in the harbour, laded with cargoes of great value, were plundered, and their houses ransacked. This example was followed throughout the whole island. He ultimately advanced with his army on Mount Eryx, near which stood Motya, a Carthaginian colony, which he invested. But soon after, leaving his brother Leptines to carry on the siege, he proceeded to reduce the cities in alliance with the Carthaginians. The Carthaginians, in the meantime, sent officers to Europe, with considerable sums, to raise troops. Ten galleys were also sent from Carthage to destroy all the ships that were found in the harbour of Syracuse. The admiral entered the harbour by night, without being perceived by the enemy; and having sunk most of the ships he found there, returned without the loss of a man. All this while the Motyans defended themselves with great vigor. At last the place was taken by storm, and the Greek soldiers began a general massacre. Next year, notwithstanding a considerable loss sustained in a sea-fight with Leptines, Himilco, the Carthaginian general, landed a powerful army at Panormus, seized upon Eryx, and then advancing towards Motya, made himself master of it, before Dionysius could send any forces to its relief. He next advanced to Messina, which he besieged and took; after which most of the Siculi revolted from Dionysius. Notwithstanding this defection, Dionysius, finding his forces still amount to 30,000 foot and 3000 horse, advanced against the enemy, and, after several fluctuations of defeat and success, attacked the African general unexpectedly, ruined his fleet, and made himself master of his camp. Himilco finding himself unable to sustain another attack, came to a private agreement with Dionysius; who, for 300 talents, consented to let him escape to Africa, with the shattered remains of his fleet and army. Arrived at Carthage, Himilco was unable to bear his misfortunes, and put an end to his own life. Notwithstanding these disasters, the Carthaginians made new attempts upon Sicily, from A. A. C. 392 to 367, when the Syracusans being divided by civil dissentions, the Carthaginians thought it a proper time to exert all their efforts, in order to become masters of the island. They fitted out a fleet, and entered into alliance with Icetas, tyrant of Leontini, who pretended to have taken Syracuse under his protection. By this treaty the two powers engaged to assist each other, in order to expel Dionysius II. after which they were to divide the island between them. The Syracusans applied for succours to the Corinthians; and they readily sent them a body of troops, under the command of Timoleon. We cannot here detail his operations. See TIMOLEON. The Carthaginians at last concluded a peace on the following terms: that all the Greek cities should be set free; that the river Halycus should be the boundary between the territories of both parties; that the natives of the cities subject to the Carthaginians should be allowed to withdraw, if they pleased, to Syracuse, or its dependencies, with their families and effects; and lastly, that Carthage should not, for the future, give any assistance to the remaining tyrants against Syracuse. About A. A. C. 316 the Carthaginians engaged in another bloody war with the Sicilians, the particulars of which the reader will find narrated under the article SYRACUSE. It is only necessary here to mention, that the Carthaginians, although at first very successful in their war with Agathocles, tyrant of Syracuse, were soon after, by a singular and bold manœuvre, attacked in their own territories, their generals, Hanno and Bomilcar, defeated with great loss, and their capital itself besieged, by that prince, at the very time his own capital, Syracuse, was besieged by their general Hamilcar: who was at last obliged to raise the siege, and was defeated and beheaded by the Syracusans. These defeats led the superstitious Carthaginians to suppose they had fallen under the displeasure of their gods, by neglecting (according to their horrid system of priestcraft), to sacrifice children of noble families to them. They therefore sacrificed 200 children of the first rank, besides 300 other persons, who voluntarily offered themselves, to appease the wrath of their bloody deities! Agathocles, however, continued successful for a considerable time, till at last the tide turned in favor of the Carthaginians; whose generals, Hanno and Himilco, gained two great victories, and finally declared a peace on these terms: 1. That the Greeks should deliver up all the places they held in Africa, receiving from them 300 talents. 2. That such of them as were willing to serve in the Carthaginian army should be kindly treated, and receive the usual pay. And 3. That the rest should be transported to Sicily, and have the city of Selinus for their habitation. During this war, the Agrigentines finding the Carthaginians and Syracusans had mutually weakened each other, took the opportunity of recovering many places out of the hands of both parties. See AGRIGENTUM. From the peace with Syracuse, to the first war with the Romans, we find nothing remarkable in the history of Carthage.

The first Punic war, as it is commonly called, happened about A. A. C. 256. At that time, the Carthaginians were possessed of extensive dominions in Africa; they had made considerable progress in Spain; were masters of Sardinia, Corsica, and all the islands on the coast of Italy; and had extended their conquests to a great part of Sicily. The occasion of the first rupture between the two republics was the interference of the Romans with the affairs of Sicily. The Mamertines being vanquished in battle, and reduced to great straits by Hiero, king of Syracuse, had resolved to deliver up Messina, the only city they now possessed, but Hannibal obtained possession of it by stratagem. Some were for accepting the permanent protection of Carthage; others for surrendering to the king of Syracuse; but the greater part were for calling in the Romans to their assistance. Deputies were accordingly sent to Rome, and Caius Claudius was dispatched with a fleet to Rhegium. He crossed the straits, and had a conference with the Mamertines, in which he prevailed upon them all to accept of the protection of Rome: and made the necessary preparations for transporting his forces. But the Carthaginian admiral, coming up with them near the coast of Sicily, attacked them with great fury. During the engagement, a violent storm arose, which dashed many of the Roman vessels against the rocks, and greatly damaged their squadron; by which means Claudius was forced to retire to Rhegium, which he accomplished with difficulty. Hanno restored all the vessels he had taken; but ordered the deputies sent with them to expostulate with the Roman general upon the infraction of the treaties subsisting between the two republics. This expostulation, however just, produced an open rupture; Claudius soon after possessing himself of Messina. Such was the beginning of the first Punic war, which lasted twenty-four years. The particulars belong properly to the history of ROME, which see. Peace was at last concluded upon terms very unfavorable to the Carthaginians; who were bound by them, 1. To quit Sicily entirely, and all the Italian islands. 2. To pay the Romans 2200 talents of silver, or £437,250, at equal payments, within ten years, and 1000 talents immediately. 3. To restore the Roman captives and deserters without ransom; and to pay for their own. And, 4. Not to make war upon king Hiero or his allies. This bloody and expensive war had no sooner terminated, than the Carthaginians found themselves engaged in another, which had almost proved fatal to them. It is called by ancient historians the Libyan war, or the war with the mercenaries, as it arose out of the mutiny of those mercenary troops which the Carthaginians had hired during the war, and were not, at its close, able at once to pay. To complete their misery, they had no prospect of assistance from any foreign ally. They did not, however, despond, but adopted every prudent measure of defence. Hanno was appointed commander in chief, and the most strenuous efforts were made to reduce the rebels by force of arms. In the mean time Mathos, and Spendius, their leaders, laid siege to Utica and Hippacra; and cut off all communication betwixt Carthage and the continent of Africa. The capital was thus kept in a kind of blockade. Hanno was dispatched to the relief of Utica with a large body of forces, 100 elephants, and a train of battering engines. He immediately attacked their intrenchments, and after an obstinate dispute, forced them. The mercenaries lost a vast number of men; and the advantages gained by Hanno were so great, that they might have proved decisive, had he improved them: but becoming secure after his victory, the mercenaries rallied their forces, cut off many of his men, and plundered his camp, forcing the rest to fly into the town. He also suffered the mercenaries to take possession of the isthmus, on which Carthage stood, and which joined the peninsula to the continent of Africa. The Carthaginians, therefore, now placed Hamilcar Barcas at the head of their forces. He marched against the enemy with 10,000 men, horse and foot; being all the troops the Carthaginians could at this time assemble. Mathos, after he had possessed himself of the isthmus, passed the Bagrada by night, and advancing into the plain where his elephants were capable of acting, drew up his troops in order of battle; Spendius, then drew a body of 10,000 men out of Mathos's camp, which he posted on one side of Hamilcar, and ordered 15,000 from Utica to observe him on the other, thinking to surround the Carthaginians, and cut them all off at once. Hamilcar now feigning a retreat, engaged them at a disadvantage; and gave them a total overthrow with the loss of 6000 killed and 2000 taken prisoners. He pursued them to the town near the bridge, which he entered without opposition, the mercenaries flying in great confusion to Tunis. Upon this many towns submitted voluntarily to the Carthaginians, whilst others were reduced by force. Mathos, however, pushed on the siege of Hippo with vigor, and Spendius and Autaritus, commanders of the Gauls, at the head of a detachment of 6000 men, from the camp at Tunis, and 2000 Gallic horse, having received a strong reinforcement of Africans and Numidians, and seizing all the heights around the plain in which Hamilcar lay encamped, resolved to attack him. Had a battle now ensued, Hamilcar and his army must have been cut off; but a young Numidian nobleman deserted the mercenaries with 2000 men; a battle ensued just at this juncture, and the Africans were entirely overthrown, with the loss of 10,000 men killed, and 4000 taken prisoners. Mathos and his associates bearing of the lenity of Hamilcar towards his captives, and fearing it might occasion a defection among his troops, thought that the best expedient would be to put them upon some action so execrable in its nature, that no hopes of reconciliation might remain. Gisco and all the Carthaginian prisoners were therefore put to death. In revenge for this enormity, Hamilcar threw all the prisoners that fell into his hands to be devoured by wild beasts! After this the mercenaries were able to take the field with 50,000 men. But Hamilcar being much superior to them in tactics, shut them up at last in a post so situated, that he kept them strictly besieged; and the enemy not daring to venture a battle, began to fortify their camp, and surround it with ditches and intrenchments. They were soon so hard pressed by famine, that they were obliged to eat one another. At last, being reduced to the utmost extremity of misery, they insisted that Spendius, Autaritus, and Zarxas, their leaders, should have a personal conference with Hamilcar, and make proposals of peace. This was accordingly concluded upon the following terms, viz. That ten of the ringleaders should be left entirely to the mercy of the Carthaginians; and that the troops should all be disarmed, every man retiring only in a single coat. The treaty was no sooner concluded than Hamilcar, by virtue of the first article, seized upon the negociators themselves, and the army being informed that their chiefs were under arrest, had immediately recourse to arms, as suspecting they were betrayed; but Hamilcar, drawing out his forces in order of battle, surrounded them, and either cut them to pieces, or trod them to death with his elephants. The number of wretches who perished on this occasion amounted to above 40,000. Hamilcar now invested Tunis, and being joined in the command by Hannibal, the army was no sooner encamped, than he caused Spendius and the rest of the prisoners, to be let out in view of the besieged, and crucified near the walls. Mathos, however, sallied out, took several prisoners, among whom was Hannibal himself, and plundered his camp. Taking the body of Spendius from the cross, Mathos immediately substituted Hannibal in its room; and thirty Carthaginian prisoners of distinction were crucified around him. Upon this disaster, Hamilcar decamped, and posted himself along the sea-coast, near the mouth of the Bagrada. Thirty senators were now sent from Carthage, with Hanno at their head, to consult with Hamilcar about the proper measures for putting an end to this unnatural war; all the youth capable of bearing arms were at the same time pressed into the service; by which means a strong reinforcement being sent to Hamilcar, he soon found himself in a condition to act offensively. He now drew Mathos into frequent ambuscades, and gave him a notable overthrow near Leptis. This reduced the rebels to the necessity of hazarding a decisive battle, which proved fatal to them. They fled almost at the first onset; Mathos, with a few, escaped to a neighbouring town, where he was taken, carried to Carthage, and executed; and then, by the reduction of the revolted cities, an end was put to this war, which, from the excesses of cruelty committed in it, according to Polybius, went among the Greeks by the name of the inexpiable war.

During the Lybian war, the Romans wrested the island of Sardinia from the Carthaginians; which the latter, not being able to resist, were obliged to submit to; Hamilcar finding his country not in a condition to enter into an immediate war with Rome. He now, however, projected the conquest of Spain, by which means the Carthaginians might have troops capable of coping with the Romans. Here he commanded nine years, during which he subdued many of the barbarous nations, and amassed an immense quantity of treasure. At last he was killed in a battle, and was succeeded by his son-in-law Asdrubal. This general fully answered the expectations of his countrymen; greatly enlarged their dominions in Spain; and built the city of New Carthage, now Carthagena. The Romans, who did not choose to come to an open rupture with him, on account of the apprehensions they were under of an invasion from the Gauls, concluded at this time the following treaty with Carthage:—1. That the Carthaginians should not pass the Iberus. 2. That the Saguntines, a colony of Zacynthians, and a city situated between the Iberus and that part of Spain subject to the Carthaginians, as well as the other Greek colonies there, should enjoy their ancient rights and privileges. Asdrubal, after having governed the Carthaginian dominions in Spain for eight years, was treacherously murdered by a Gaul whose master he had put to death. Hannibal the younger was now saluted general by the army with demonstrations of joy. In the first campaign, he conquered the Olcades, a nation seated near the Iberus. Next year he subdued the Vaccæi, another nation in that neighbourhood. Soon after, the Carpætani, one of the most powerful nations in Spain, declared against the Carthaginians. Their army consisted of 100,000 men, with which they proposed to attack Hannibal on his return from the Vaccæi; but by stratagem they were utterly defeated, and the nation obliged to submit. Nothing now remained to oppose the progress of



the Carthaginian arms, but the city of Saguntum. Hannibal, for some time, did not think proper to come to a rupture with the Romans, by attacking that place. At last he found means to embroil some of the neighbouring cantons, especially the Turdetani, with the Saguntines, and thus furnished himself with a pretence to attack their city. Upon the commencement of the siege, the Roman senate dispatched two ambassadors to Hannibal, with orders to proceed to Carthage, in case the general refused to give them satisfaction. They were scarce landed, when Hannibal, who was carrying on the siege of Saguntum with great vigor, sent them word that he had something else to do than to give audience to ambassadors. At last, however, he admitted them; and in answer to their remonstrances, told them, that the Saguntines had drawn their misfortunes upon themselves, by committing hostilities against the allies of Carthage; and at the same time desired the deputies, if they had any complaints to make of him, to carry them to the senate of Carthage. On their arrival in that capital, they demanded that Hannibal might be delivered up to the Romans, to be punished according to his deserts; and this not being complied with, war was immediately declared between the two republics. The Saguntines defended themselves for eight months with incredible bravery; but at last, their city was taken, and the inhabitants were treated with the utmost cruelty. After this, Hannibal put his African troops into winter quarters at New Carthage; but in order to gain their affection, he permitted the Spaniards to retire to their respective homes.

Having taken measures for securing Africa and Spain, he now passed the Iberus, subdued all the nations betwixt that river and the Pyrenees, appointed Hanno commander of all the newly conquered districts, and began his march for Italy. Upon mustering his forces, after they had been weakened by sieges, desertion, mortality, and a detachment of 10,000 foot and 1000 horse, left with Hanno to support him in his new post, he found them to amount to 50,000 foot and 9000 horse, all veteran troops, and the best in the world. Hannibal easily crossed the Pyrenees; passed by Ruscino, a frontier town of the Gauls; and arrived on the banks of the Rhone without opposition. But in passing this river, he met with some opposition from the Gauls; and was for some time in doubt whether he should advance to engage the Romans, who, under Scipio, were marching that way, or continue his march for Italy. To the latter he was soon determined by the arrival of Magilus, prince of the Boii, who brought rich presents, and offered to conduct the Carthaginian army over the Alps. Nothing could have happened more favorable to Hannibal's affairs, as there was no room to doubt the sincerity of this prince. It is not known with certainty where Hannibal began to ascend these celebrated barriers. As soon as he began his march, the petty kings of the country assembled their forces in great numbers; and taking possession of the eminences over which the Carthaginians must pass, continued harassing them, and disputing every foot of ground. At last, after a fatiguing march of nine days, he arrived at the summit of the pass. Here he encamped, and halted two days, to give his wearied troops some repose, and to wait for the stragglers. The sight of the snow covering the ground terrified them, it is said, extremely. Hannibal led them to the top of the highest rock on the side of Italy, and, showing them the fruitful plains of Insubria, told them that the Gauls, whose country they saw, were ready to join them. He also told them, that by climbing the Alps, they had scaled the walls of Rome. At last, after almost incredible fatigue and exertions, their way, which was exceedingly narrow, lay between two precipices; the declivity, which was very steep, had become more dangerous by the falling away of the earth. Here the guides stopped; and the whole army being terrified, Hannibal proposed at first to attempt some other way: but every path around him being covered with snow, he found himself under the necessity of cutting a way through the rock itself. This was not accomplished without vast labor; and Hannibal, having spent nine days in ascending, and six in descending, the Alps, at last reached Insubria. Upon reviewing his army, he found, that of the 50,000 foot with whom he set out from New Carthage five months and fifteen days before, he had now only 20,000, and that his 9000 horse were reduced to 6000. He did not languish in idleness; but, joining the Insubrians, who were at war with the Taurinians, laid siege to Taurinum, the only city in that country, and in three days became master of it, putting all who resisted to the sword. The neighbouring tribes voluntarily submitted to the conqueror, and supplied his army with all sorts of provisions.—Having thus brought our Carthaginian hero to the borders of the Roman territories, we refer the reader for an account of his repeated and astonishing victories, as well as his ultimate defeats, during the second Punic war (which was chiefly carried on in Italy), to the History of Rome: and shall hasten to relate the accumulated distresses and final catastrophe of his country, which that hero exerted himself so much to prevent. After a tedious and expensive war of fourteen years, the Carthaginians were obliged to submit to the following very humiliating terms of peace, viz. 1. To deliver up all the Roman deserters, fugitive slaves, prisoners, and all the Italians whom Hannibal had obliged to follow him: 2. To give up all their ships of war except ten triremes, with all their tame elephants, and to train up no more of these animals for war: 3. Not to engage in any war without the consent of the Romans: 4. To pay to the Romans, in fifty years, 10,000 Euboic talents, at equal payments: 5. To restore to Masinissa all that they had usurped from him or his ancestors, and to enter into an alliance with him: 6. To assist the Romans both by sea and land, when called upon: and 7. Never to make any levies either in Ga or Liguria. These terms appeared so intolerable to the people of Carthage, that they threatened to burn the houses of the nobility; but Hannibal having assembled 600 foot and 500 horse at Marthama, prevented an insurrection, and by his influence completed the accommodation. These terms of peace, however, were scarcely signed when Masinissa seized part of the Carthaginian dominions in Africa, pretending that they formerly belonged to his family. The Carthaginians, through the mediation of the Romans, found themselves under a necessity of ceding these countries to that ambitious prince, and of entering into an alliance with him. Hannibal was now intrusted with the command of an army against some neighbouring nations in Africa; but this being disagreeable to the Romans, he was removed from it, and raised to the dignity of a prætor of Carthage. But the Romans compelled his ungrateful country, at last, to expel him from this post, and he was obliged to fly to Antiochus king of Syria; his effects were confiscated, his house rased, and a public decree declared him an exile. Carthage now became, as she deserved to be, miserably dependent on Rome. Disputes arising with Masinissa, he made an irruption into the province of Tysca, where he seized fifty, or as some say, seventy towns and castles. This obliged the Carthaginians to apply with importunity to the Roman senate for redress: but Masinissa was left at liberty to pursue his plans. The Romans, however, affected to show a great regard to the principles of justice and honor, and sent Cato into Africa, to accommodate all differences. The Carthaginians now appealed to the treaty concluded with Scipio, as the only rule by which their conduct and that of their adversary ought to be examined. But to prevent a rupture as much as possible, by a decree of the senate, they impeached Asdrubal, general of the army, and Carthalo, commander of the auxiliary forces, with their accomplices, as guilty of high treason, for being the authors of the war against the king of Numidia. About this time, the city of Utica, being the second in Africa, and famous for its riches, as well as its equally commodious and capacious port, submitted to the Romans; the latter, notwithstanding the most humble conduct on the part of this once great republic, declared war immediately against the Carthaginians. The consuls, M. Manlius Nepos, and L. Marcius Censorinus, were despatched with an army and fleet to commence hostilities. The land forces consisted of 80,000 foot and 4000 chosen horse; and the fleet of fifty quinqueremes, besides a vast number of transports. The consuls had secret orders from the senate, not to conclude their operations but by the destruction of Carthage. That devoted city was now ordered to send 300 young noblemen of the first distinction to the prætor Fabius at Lilybæum, within the space of thirty days, and comply with all the orders of the consuls. These hard terms filled the whole city with grief, but the hostages were delivered; and they arrived at Lilybæum before the thirty days were expired. The consuls only told them, that upon their arrival at Utica, they should learn the farther orders of the republic. Here they first demanded a sufficient supply of corn for the subsistence of their troops. 2. That they should deliver up into their hands all the triremes they were then masters of. 3. That they should put them in possession of all their military machines. And 4, that they should immediately convey all their arms into the Roman camp. As care was taken that there should be a convenient interval of time betwixt every one of these demands, the Carthaginians found themselves ensnared, and could not reject any one of them, though they submitted to the last with the utmost reluctance. Censorinus, now imagining them incapable of sustaining a siege, commanded them to abandon their city, or as Zonaras says, to demolish it; permitting them to build another, eighty stadia fom the sea, but without walls or fortifications. After their first feelings of surprise and indignation had subsided, the senators of Carthage now assembled and resolved to sustain a siege. They were stripped of their arms and destitute of provisions; but despair raised their courage, and suggested numerous expedients. They gathered on the ramparts heaps of stones, to serve them instead of arms in case of a surprise; and gave the slaves and common prisoners their liberty, and incorporated them in the militia. Asdrubal was recalled, and invited to employ the 20,000 men he had raised against his country, in defence of it. Another Asdrubal was appointed to command in Carthage; and all seemed resolute to save the city, or perish in its ruins. Every day they are said to have manufactured 144 bucklers, 300 swords, 1000 darts, and 500 lances and javelins. Where iron and brass were wanting, they made use of silver and gold, melting down the statues, vases, and the plate of private families. As tow and flax were wanting to make cords for working the machines, women of the first rank freely cut off their hair, and dedicated it to that use. Without the walls, Asdrubal employed troops in getting together provisions, and conveying them safe into Carthage; at length the Roman army sat down before the place and invested it. Persuaded that the Carthaginians had no arms, they flattered themselves that they should carry the city by assault. Accordingly, they approached to plant their scaling ladders; but, to their astonishment, discovered a prodigious multitude of men on the ramparts, in the armour they had newly made, and were obliged to resign their enterprise. In the mean time Asdrubal, having collected from all places subject to Carthage a prodigious number of troops, encamped within reach of the Romans, and reduced them to great straits for want of provisions. The troops of Marcius were attacked with a violent epidemic. He therefore ordered his fleet to draw as near the shore as possible, in order to transport them to a healthier spot. Asdrubal, being informed of this, ordered all the old barks in the harbour to be filled with faggots, tow, sulphur, bitumen, and other combustible materials; and taking advantage of the wind, which blew towards the enemy, let them drive upon the Roman ships, which were for the most part consumed. After this disaster, Marcius was recalled, and the Carthaginians made a brisk sally upon the remaining consul's camp, and would have succeeded, had not Æmilianus marched out of the opposite gate to where the attack was made, and falling unexpectedly on their rear, obliged them to return in disorder to the city. Asdrubal shortly after gave battle to the consul near Nepheris, and rushing down the hill, cut a great number of the Romans in pieces. The whole Roman army would now have been destroyed, had not Scipio Æmilianus, at the head of 300 horse, sustained the attack of Asdrubal's forces, and covered the legions, while they passed a river in their retreat. When the army had crossed, it was perceived that four manipuli were wanting; and, soon after, they were informed that they had retired to an eminence, where they expected to be cut off. Upon this Emilianus, taking with him a chosen body of horse, and provisions for two days, crossed the river, and flew to the assistance of his countrymen. He seized a hill over against that on which the four manipuli were posted; and, after some hours repose, marched against the Carthaginians who kept them invested; and in spite of all opposition, opened a way for their escape. On his return to the army, his companions, who had despaired of his return, carried him to his quarters in triumph; and the manipuli he had saved gave him a crown of gramen. The next year the war in Africa fell by lot to the consul L. Calpurnius Piso; and he continued to employ Æmilianus in several important enterprises. He took several castles; and in one of his excursions, had a private conference with Phameas, general, under Asdrubal, of the Carthaginian cavalry, and brought him over, together with 2200 of his horse, to the Roman interest. Under the consul Calpurnius Piso himself, however, the Roman arms were unsuccessful. He invested Clupea, but was obliged to abandon the enterprise. From this place he went to vent his rage on Neapolis, which professed a strict neutrality, and had even a safeguard from the Romans. The consul, however, plundered the place. Next year Scipio Æmilianus was chosen consul, and ordered to pass into Africa: upon his arrival the face of affairs was greatly changed. At the time of his entering the port of Utica, 3500 Romans were in great danger of being cut in pieces before Carthage. These troops had seized Megalia, one of the suburbs of the city; but had not furnished themselves with provisions to subsist there, and could not retreat. Æmilianus obliged the Carthaginians to retire within their walls, and safely conveyed his countrymen to Utica. Having then drawn together all the troops, he applied himself wholly to the siege of the capital. He carried Megalia by assault, the Carthaginian garrison retiring into the citadel of Byrsa. Asdrubal was so enraged at this loss, that he caused all the Roman captives taken in the last two years to be brought upon the ramparts, and thrown headlong, in the sight of the Roman army, from the top of the wall. He was of a temper remarkably inhuman, and is said to have ordered several of these unhappy wretches to be flayed alive. Æmilianus, in the mean time, was busy in drawing lines of circumvallation and contravallation across the neck of land which joined Carthage to the continent of Africa. All the avenues on the land side were thus shut up, so that the city could receive no provisions that way. His next care was to raise a mole in the sea, to block up the old port, the new one being already shut up by the Roman fleet, and this great work he effected with immense labor. The mole reached from the western neck of land, of which the Romans were masters, to the entrance of the port, being ninety feet broad at the bottom, and eighty at the top. The besieged, when the Romans first began this surprising work, laughed at the attempt; but were no less alarmed than astonished, when they beheld a vast mole appearing above water, and by that means the port rendered inaccessible to ships, and quite useless. Once more prompted by despair, however, the Carthaginians dug a new bason, and cut a passage into the sea, by which they could receive the provisions that were sent them by the troops in the field. With equal diligence and expedition, they fitted out a fleet of fifty triremes, which, to the great surprise of the Romans, appeared suddenly advancing into the sea through this new canal, and even ventured to give the enemy battle. The action lasted the whole day, with little advantage on either side. The day after, the consul endeavoured to make himself master of a terrace, which covered the city on the side next the sea; and on this occasion the besieged signalised themselves in a most remarkable manner. Great numbers of them, naked and unarmed, went into the water in the dead of the night, with unlighted torches in their hands; and having, partly by swimming, partly by wading, got within reach of the Roman engines, they struck fire, lighted their torches, and threw them with fury against the machines. The sudden appearance of these naked men, who looked like so many monsters started up out of the sea, so terrified the Romans who guarded the machines, that they began to retire in the utmost confusion. This, however, did not discourage the consul: he renewed the attack a few days after, carried the terrace by assault, and lodged 4000 men upon it. As this was an important post, because it pent in Carthage on the sea side, Æmilianus took care to fortify it against the sallies of the enemy; and winter now approaching, he suspended all further attacks on the place. He was, not, however, inactive. The Carthaginians had a very numerous army, strongly encamped near Nepheris, whence convoys of provisions were sent by sea to the besieged, and brought into the new bason. Emilianus therefore attacked the enemy's entrenchments here, put 70,000 to the sword, and made 10,000 prisoners; all the country people, who could not retire to Carthage, having taken refuge in this camp. After this he laid siege to Nepheris, which he reduced in twenty-two days. Early in the spring he renewed the siege of Carthage, and ordered Lælius to attempt the reduction of Cotho, a small island which divided the two ports. Æmilianus himself made a false attack on the citadel to facilitate this object; and when he understood by the loud shouts of the troops of Lælius, that he had made himself master of Cotho, he fell unexpectedly on the neighbouring gate of the city, which he broke down, and made a lodgment within it. The following day he ordered 4000 fresh troops to be sent from his camp, and, having solemnly devoted Carthage to the infernal gods, began to advance through the streets of the city to attack the citadel. The houses on both sides were very high, and filled with Carthaginians, who poured on the Romans darts and stones, so that they cou'd not proceed till they had cleared them. From the market place to the citadel, two bodies of men fought their way every step, one above on the roofs of the houses, the other below in the streets. The slaughter was immense. The air rung with lamentations. The pro-consul at last commanded fire to be set to that quarter of the town which lay next to the citadel; and multitudes, who had escaped the sword of the enemy, perished in the flames, or by the fall of the houses. After the fire, which lasted six days, had opened a large area where all his troops could act, Æmilianus appeared with his whole army before Byrsa, when 25,000 women, and 30,000 men, came out of the gates, and threw themselves prostrate before him, asking no favor but life. Asdrubal's wife earnestly entreated her husband to suffer her to join the suppliants, and carry with her to the proconsul her two sons, who were as yet very young; but he denied her request, and rejected her remonstrances with menaces. The Roman deserters, seeing themselves excluded from mercy, resolved to die sword in hand. To them Asdrubal committed the care of his wife and children; after which he, in a most cowardly manner, privately threw himself at the conqueror's feet. The Carthaginians in the citadel no sooner understood that their commander had abandoned the place, than they threw open the gates, and put the Romans in possession of Byrsa. They had now no enemy to contend with but the 900 deserters, who, being reduced to despair, retreated into the temple of Æsculapius, a second building within the first. There the proconsul attacked them; and these unhappy wretches, finding no way to escape, set fire to the temple. As the flames spread, they retreated from one part of the building to another, till they reached the roof. Here Asdrubal's wife appeared in her best apparel, uttering the most bitter imprecations against her husband, whom she saw standing below with Æmilianus. 'Base coward,' said she, 'the mean things thou hast done to save thy life shall not avail thee; thou shalt die this instant in thy two children.' Having thus spoken, she stabbed both the infants with a dagger; and while they were yet struggling for life, threw them from the top of the temple, and then leaped down after them into the flames. Æmilianus delivered up the city to be plundered, in the manner prescribed by the Roman military law. The soldiers were allowed to appropriate to themselves all the furniture, utensils, and brass money, they should find in private houses; but all the gold and silver, the statues, pictures, &c. were put into the hands of the quæstors. On this occasion the cities of Sicily, which had been often plundered by the Carthaginian armies, recovered a number of statues, pictures, and other valuable monuments; amongst the rest, the famous brazen bull, which Phalaris had ordered to be cast, and used as the chief instrument of his cruelty, was restored to the inhabitants of Agrigentum. As Æmilianus wished to spare what remained of this stately metropolis, he wrote to the senate on the subject, from whom he received the following orders: 1. To destroy entirely the city of Carthage, with Byrsa and Megalia, and to leave no traces of them. 2. To dismantle all the cities that had lent Carthage any assistance. 3 To enlarge the territories of those cities which had declared for the Romans, with lands taken from the enemy. 4. To divide all the lands between Hippo and Carthage among the inhabitants of Utica. 5. To subject all the Africans of the Carthaginian state, both men and women, to pay an annual tribute at so much per head. 6. To turn the whole country, formerly subject to the Carthaginian state, into a Roman province, to be governed by a prætor, like Sicily. Commissioners were also sent into Africa, to settle jointly with the pro-consul the state of the new province. Thus fell Carthage, about A. A. C. 146; a city whose destruction may be attributed more to the intrigues of an abandoned faction, than to the power of its rival. The treasure Æmilianus carried off was immense: Pliny making it amount to 4,470,000 pounds weight of silver.

The Romans ordered Carthage never to be inhabited again, denouncing dreadful imprecations against those who should attempt to rebuild any part of it, especially Byrsa and Megalia. About twenty-four years after, however, C. Gracchus, tribune of the people, undertook to rebuild it; and, to that end, conducted thither a colony of 6000 Roman citizens. The workmen, according to Plutarch, were terrified by many unlucky omens, while they were laying the foundations of the new city; which the senate being informed of, they would have suspended the attempt. But the tribune, little affected with such presages, continued to carry on the work, and finished it in a few days. Hence it is probable that only a kind of huts were erected; but whether Gracchus executed his design, or the work was entirely discontinued, it is certain that Carthage was the first Roman colony ever sent out of Italy. According to some, it was rebuilt by Julius Cæsar; and Strabo, who flourished in the reign of Tiberius, affirms it to have been equal, in his time, if not superior, to any other city in Africa. It was reckoned the capital of Africa for near 700 years after the Christian æra. Maxentius laid it in ashes about the sixth or seventh year of Constantine's reign. Genseric, king of the Vandals, took it A. D. 439; but about a century afterwards it was re-annexed to the Roman empire by the renowned Belisarius. At last the Saracens, under Mahomet's successors, towards the close of the seventh century, completely destroyed all its vestiges. On the ruins there now stands a small village, called Melcha. There are three eminences here, it is said, which are so many masses of fine marble pounded together, and are in all probability the remains of temples or other distinguished buildings. The present ruins are not the remains of the ancient city destroyed by the Romans; who after taking it entirely erased it; and ploughed up the very foundations; so strictly they adhered to the inhuman advice perpetually inculcated by Cato the elder, Delenda est Carthago. They are the ruins of the second city, which was destroyed by the Saracens.

CARTHAGENA, an ancient and well built town of Spain on the coast, and in the kingdom of

Murcia; capital of a territory of the same name. It was built by Asdrubal, the Carthaginian general, and named after Carthage. See CARTHAGE. It possesses the best harbour in Spain, but the former bishop's see is transferred to Toledo. Here is a manufacture of sail-cloth and extensive alum works. In the neighbourhood are found rubies, amethysts, and other precious stones; and about four miles to the east are the hot springs of Archena. Population 25,000. It was taken by Sir John Leake in 1706, and retaken by the duke of Berwick soon after. It is twenty-five miles S. S. E. of Murcia, and 115 S. S. W. of Valencia.

CARTHAGENA, a province of Colombia (formerly of the kingdom of New Granada), South America, in the department of Magdalena. It is bounded on the north by the Spanish main; on the south by the province of Antioquia; on the east by the great river Magdalena, and on the west by the river and province of Darien. It is eighty-five leagues long from north to south, and fifty-three wide from east to west. It is of a moist and warm temperature, full of mountains and woods, and towards the north part very swampy; but it is fertile in maize, rice, fruits, and cattle, in the hides of which it drives a great trade. Its mountains, among which that ridge of the Andes terminates which divides the bed of the Magdalena from the Darien, yield several fine dye-woods, gums, and balsams. The great plains or savannas of Zenu, Zamba, Tolu, Mempox and Barancas, are also very fruitful. The Magdalena and the Cauca are its most important rivers.

The European and native settlements are chiefly on the coast, or in the valley. Gold is said to have been abundant formerly in the hills and rivers, but has been little seen of late. Maize bread, called bollos, is used both by the natives and Europeans, but the negroes make use of the cassava bread, made from roots. Some opulent families use European flour. Sugar-cane plantations are common, the cotton-tree, and an excellent species of the cacao. The fruit of this province are melons, grapes, oranges, dates, the pine-apple, the plaintain, banana, papaws, yams, mameis, sapotes, limes, and tamarinds. The trees here grow to an immense bulk, and form a pleasing shade from the scorching sun. The canoes of the natives are formed of an excellent mahogany called acajou, and a beautiful white and red cedar is in common use. Here is also a poisonous fruit called the mançanillo, from the Spanish word mançana, an apple, the fruit of which resembles the European apple in shape, color, and taste; but the juice of this tree is so acrid, that it blisters the skin of those employed in felling it, and it is reckoned dangerous, we are told, to remain under its shade after a shower, as the droppings have the same quality. Numerous tribes of wild animals are found in the forests, among which the jaguar and the American leopard are the fiercest, and commit extensive depredations on the neighbouring plantations. Cattle and swine are numerous; and several rare and beautiful species of birds. The wild geese are caught by the Indians in a curious manner. In the places which they frequent, the Indians put calabashes or gourds, which, constantly floating on the surface of the water, cause no alarm to the geese, and when they are sufficiently accustomed to see them, the Indian gets into the water at a distance from the flock, with a gourd over his head; he then advances amongst them, and draws them by the legs under the surface, until he has procured as many as he wants.

The insects and reptiles are numerous. The centipede, the scorpion, and the spider, are all very troublesome; and amongst the serpents, the rattle-snake, the dart, and the dreadful corales, or coral snakes, are the most venomous. This province contains a population of 170,000 souls. It sends six representatives, and with Santa Marta and Rio Hacha, four senators to the congress of Columbia.

CARTHAGENA, a city of Columbia, South America, the capital of the above province, is situated in a peninsula, joined to some others, and to the continent by two artificial necks of land; the broadest of which is only seventy yards wide. The suburb Xexemani, in the island near the town, is nearly as large as the town itself, and is surrounded, as well as the city, with strong modern fortifications. At a small distance on the continent is a hill, 150 feet high, commanding both the fortifications and the strong fort of St. Lazaro. The bay of Carthagena is two leagues and a half from north to south, is completely land-locked, and has capital anchorage. Its chief disadvantage is the shoals near its entrance. It abounds with excellent turtle and other fish, but the numerous sharks render bathing unsafe.

The city is well planned, the houses generally of stone, the streets broad, straight, and well paved, and with lattices in the Spanish manner. The cathedral, churches, and monasteries, are the only public buildings worth notice. Carthagena is very subject to the leprosy; to prevent the increase of which, they have an hospital in which lepers are comfortably provided for, but confined for life.

The exports consist of cotton, sugar, Brazil and other woods, including that of indigo, cinchona, balm of Tolu, and ipecacuanha. The imports are European manufactures and other goods. Population about 25,000.

CARTHAMUS, in botany: a genus of the order of polygamia æqualis, syngenesia class of plants, natural order forty-ninth, compositæ: CAL. is ovate, imbricated with scales, close below, and augmented with subovate foliaceous appendices at top. Of this genus there are sixteen known specimens; but the only remarkable one is C. tinctorius, with a saffron colored flower, a native of Egypt, and some of the warm parts of Asia. It is cultivated in many parts of Europe, and in the the Levant, from whence great quantities of it are annually imported into Britain for dyeing and painting. The good quality of this commodity is in the color, which is of a bright saffron hue: and in this the British carthamus very often fails. The plants are propagated by seeds. The flowers should be taken off as they come to perfection: but this must be performed when they are perfectly dry; and then they should be placed in a kiln with a moderate fire, in the same manner as the true saffron. The seeds have been celebrated as a cathartic; but they operate very slowly, and for the most part disorder the stomach and bowels, especially when given in substance; triturated with distilled aromatic waters, they prove less offensive, yet inferior in efficacy to the common purgatives. A species of Egyptian parrot is very fond of them; to other birds or beasts they would prove a mortal poison.

CARTHUSIAN Powder. See Kermes.

Carthusians, a religious order founded A. D. 1080, by one Bruno; so called from the desert of Chartreuse, the place of their institution. Their rule is extremely severe. They must not go out of their cells, except to church, without leave of their superior; nor speak to any person without leave. They must not keep any meat or drink till next day; their beds are of straw, covered with a felt; their clothing two hair-cloths, two cowls, two pair of hose, and a cloke, all coarse. In the refectory, they must keep their eyes on the dish, their hands on the table, their attention on the reader, and their hearts fixed on God. Women must not come into their churches.

CAR'TILAGE, *n.*
Cartilagi'neous, *adj.*
Cartila'ginous, *adj.*
} Lat. *cartilago*. Cartilage, says Quincy, is a smooth and solid body, softer than a bone, but harder than a ligament. In it are no cavities or cells for containing of marrow; nor is it covered over with any membrane to make it sensible, as the bones are. The cartilages have a natural elasticity, by which, if they are forced from their natural figure or situation, they return to it of themselves, as soon as that force is taken away. The adjectives, of course, signify that which consists of cartilage. See the next article.

> Canals, by degrees, are abolished, and grow solid; several of them united grow a membrane; these membranes further consolidated become *cartilages*, and *cartilages* bones. *Arbuthnot.*

> By what artifice the *cartilagineous* kind of fishes poise themselves, ascend and descend at pleasure, and continue in what depth of water they list, is as yet unknown. *Ray.*

> The larynx gives passage to the breath, and as the breath passeth through the rimula, makes a vibration of those *cartilaginous* bodies, which forms that breath into a vocal sound or voice.
> *Holder's Elements of Speech.*

Cartilage, (cartilago, quasi caruilago; from caro, carnis, flesh). A white, elastic, glistening substance, growing to bones, and commonly called gristle. Cartilages are divided by anatomists into obducent, which cover the moveable articulations of bones; inter-articular, which are situated between the articulations, and which unite one bone with another. Their use is to lubricate the articulations of bones, and to connect some bones by an immoveable cohesion. See Anatomy.

Cartilaginous, in ichthyology, a title given to all fish whose muscles are supported by cartilages instead of bones. It comprehends the same genera to which Linnæus has given the name of amphibia nantes: Many of the cartilaginous fish are viviparous, being excluded from egg, which is hatched within them. The egg consists of a white and yolk; and is lodged in a case formed of a thick tough substance, not unlike softened horn: such are the eggs of the ray and shark kinds. Some are oviparous; such are the sturgeon, &c. They breathe either through certain apertures beneath, as in the ray; on their sides, as in the shark, &c.; or on the top of the head, as in the pipe-fish; for they have not covers to their gills, like the bony fish.

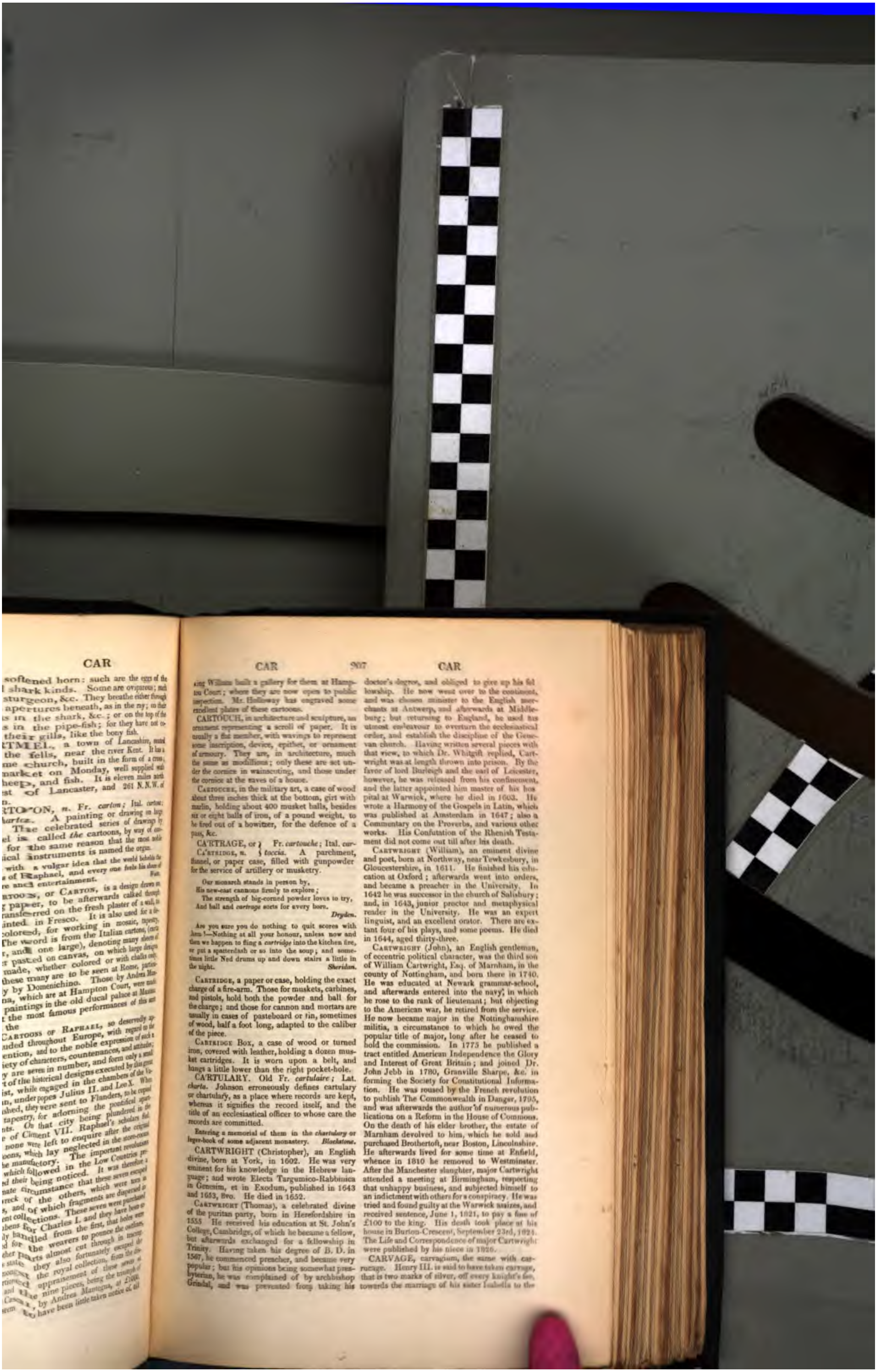
CARTMEL, a town of Lancashire, seated among the fells, near the river Kent. It has a handsome church, built in the form of a cross; and a market on Monday, well supplied with corn, sheep, and fish. It is eleven miles north by west of Lancaster, and 261 N. N. W. of London.

CARTO'ON, *n.* Fr. *carton;* Ital. *cartone;* Lat. *charta.* A painting or drawing on large paper. The celebrated series of drawings by Raphael is called *the* cartoons, by way of eminence, for the same reason that the most noble of musical instruments is named the organ.

> It is with a vulgar idea that the world beholds the *cartoons* of Raphael, and every one feels his share of pleasure and entertainment. *Watts.*

Cartoon, or Carton, is a design drawn on strong paper, to be afterwards calked through and transferred on the fresh plaster of a wall, to be painted in Fresco. It is also used for a design colored, for working in mosaic, tapestry, &c. The word is from the Italian cartone, (carta paper, and one large), denoting many sheets of paper pasted on canvas, on which large designs are made, whether colored or with chalks only. Of these many are to be seen at Rome, particularly by Domenichino. Those by Andrea Mantegna, which are at Hampton Court, were made for paintings in the old ducal palace at Mantua. But the most famous performances of this sort are the

Cartoons of Raphael, so deservedly applauded throughout Europe, with regard to the invention, and to the noble expression of such a variety of characters, countenances, and attitudes; they are seven in number, and form only a small part of the historical designs executed by this great artist, while engaged in the chambers of the Vatican, under popes Julius II. and Leo X. When finished, they were sent to Flanders, to be copied in tapestry, for adorning the pontifical apartments. On that city being plundered in the time of Clement VII. Raphael's scholars fled, and none were left to enquire after the original cartoons, which lay neglected in the store-rooms of the manufactory. The important revolutions also which followed in the Low Countries prevented their being noticed. It was therefore a fortunate circumstance that these seven escaped the wreck of the others, which were torn in pieces, and of which fragments are dispersed in different collections. These seven were purchased by Rubens for Charles I. and they have been so roughly handled from the first, that holes were pricked for the weavers to pounce the outlines, and other parts almost cut through in tracing. In this state they also fortunately escaped the sale amongst the royal collection, from the disproportioned appraisement of these seven at £300, and the nine pieces, being the triumph of Julius Cæsar, by Andrea Mantegna, at £1000. They seem to have been little taken notice of, till



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king William built a gallery for them at Hampton Court; where they are now open to public inspection. Mr. Holloway has engraved some excellent plates of these cartoons.

CARTOUCH, in architecture and sculpture, an ornament representing a scroll of paper. It is usually a flat member, with wavings to represent some inscription, device, epithet, or ornament of armoury. They are, in architecture, much the same as modillions; only these are set under the cornice in wainscoting, and those under the cornice at the eaves of a house.

CARTOUCHE, in the military art, a case of wood about three inches thick at the bottom, girt with marlin, holding about 400 musket balls, besides six or eight balls of iron, of a pound weight, to be fired out of a howitzer, for the defence of a pass, &c.

CA'RTRAGE, or } Fr. *cartouche*; Ital. *car-*
CA'RTRIDGE, *n.* } *toccia.* A parchment, flannel, or paper case, filled with gunpowder for the service of artillery or musketry.

> Our monarch stands in person by,
> His new-cast cannons firmly to explore;
> The strength of big-corned powder loves to try,
> And ball and *cartrage* sorts for every bore.
>
> *Dryden.*

> Are you sure you do nothing to quit scores with him?—Nothing at all your honour, unless now and then we happen to fling a *cartridge* into the kitchen fire, or put a spatterdash or so into the soup; and sometimes little Ned drums up and down stairs a little in the night. *Sheridan.*

CARTRIDGE, a paper or case, holding the exact charge of a fire-arm. Those for muskets, carbines, and pistols, hold both the powder and ball for the charge; and those for cannon and mortars are usually in cases of pasteboard or tin, sometimes of wood, half a foot long, adapted to the caliber of the piece.

CARTRIDGE BOX, a case of wood or turned iron, covered with leather, holding a dozen musket cartridges. It is worn upon a belt, and hangs a little lower than the right pocket-hole.

CA'RTULARY. Old Fr. *cartulaire*; Lat. *charta.* Johnson erroneously defines cartulary or chartulary, as a place where records are kept, whereas it signifies the record itself, and the title of an ecclesiastical officer to whose care the records are committed.

> Entering a memorial of them in the *chartulary* or leger-book of some adjacent monastery. *Blackstone.*

CARTWRIGHT (Christopher), an English divine, born at York, in 1602. He was very eminent for his knowledge in the Hebrew language; and wrote Electa Targumico-Rabbinica in Genesim, et in Exodum, published in 1643 and 1653, 8vo. He died in 1652.

CARTWRIGHT (Thomas), a celebrated divine of the puritan party, born in Herefordshire in 1555 He received his education at St. John's College, Cambridge, of which he became a fellow, but afterwards exchanged for a fellowship in Trinity. Having taken his degree of B. D. in 1567, he commenced preacher, and became very popular; but his opinions being somewhat presbyterian, he was complained of by archbishop Grindal, and was prevented from taking his doctor's degree, and obliged to give up his fellowship. He now went over to the continent, and was chosen minister to the English merchants at Antwerp, and afterwards at Middleburg; but returning to England, he used his utmost endeavour to overturn the ecclesiastical order, and establish the discipline of the Genevan church. Having written several pieces with that view, to which Dr. Whitgift replied, Cartwright was at length thrown into prison. By the favor of lord Burleigh and the earl of Leicester, however, he was released from his confinement, and the latter appointed him master of his hospital at Warwick, where he died in 1603. He wrote a Harmony of the Gospels in Latin, which was published at Amsterdam in 1647; also a Commentary on the Proverbs, and various other works. His Confutation of the Rhenish Testament did not come out till after his death.

CARTWRIGHT (William), an eminent divine and poet, born at Northway, near Tewkesbury, in Gloucestershire, in 1611. He finished his education at Oxford; afterwards went into orders, and became a preacher in the University. In 1642 he was successor in the church of Salisbury; and, in 1643, junior proctor and metaphysical reader in the University. He was an expert linguist, and an excellent orator. There are extant four of his plays, and some poems. He died in 1644, aged thirty-three.

CARTWRIGHT (John), an English gentleman, of eccentric political character, was the third son of William Cartwright, Esq. of Marnham, in the county of Nottingham, and born there in 1740. He was educated at Newark grammar-school, and afterwards entered into the navy, in which he rose to the rank of lieutenant; but objecting to the American war, he retired from the service. He now became major in the Nottinghamshire militia, a circumstance to which he owed the popular title of major, long after he ceased to hold the commission. In 1775 he published a tract entitled American Independence the Glory and Interest of Great Britain; and joined Dr. John Jebb in 1780, Granville Sharpe, &c. in forming the Society for Constitutional Information. He was roused by the French revolution to publish The Commonwealth in Danger, 1795, and was afterwards the author of numerous publications on a Reform in the House of Commons. On the death of his elder brother, the estate of Marnham devolved to him, which he sold and purchased Brothertoft, near Boston, Lincolnshire. He afterwards lived for some time at Enfield, whence in 1810 he removed to Westminster. After the Manchester slaughter, major Cartwright attended a meeting at Birmingham, respecting that unhappy business, and subjected himself to an indictment with others for a conspiracy. He was tried and found guilty at the Warwick assizes, and received sentence, June 1, 1821, to pay a fine of £100 to the king. His death took place at his house in Burton-Crescent, September 23rd, 1824. The Life and Correspondence of major Cartwright were published by his niece in 1826.

CARVAGE, carvagium, the same with carrucage. Henry III. is said to have taken carvage, that is two marks of silver, off every knight's fee, towards the marriage of his sister Isabella to the

emperor. Carvage could only be imposed on tenants in capite.

CARVE, *v.* & *n.*
CAR'VER, *n.*
CAR'VING, *n.*
Ang.-Sax. ceorfan, kærf; Dutch, *kerven*; Goth. *kerfua*; Swed. *karfva*. To cut any substance, either into eatable pieces or elegant forms; to grave or engrave; to divide into portions; to distribute; to follow the profession of a sculptor. Carver is a sculptor; in the more modern acceptation, it means an inferior kind of artist, who executes the ornaments of picture frames, glasses, and furniture; it is also one who serves at table; one who apportions according to his pleasure. Carving, as a noun, signifies, carved figures, sculpture. In the quotation from Shakspeare, illustrative of carving at table, though much has been ingeniously said in defence of the present reading, I am disposed to believe that *carve* is a typographical error, and that, probably, the original word was *crave*.

> But yet had I forgotten to devise
> The noble *kerving* and the portreitures,
> The shape, the countenance, of the figures
> That weren in the oratories three. *Chaucer.*

> Or they will buy his sheep forth of the cote,
> On they will *carven* the shepherd's throat. *Spenser.*

> Run, run, Orlando, *carve* on every tree,
> The fair, the chaste, the unexpressive she.
> *Shakspeare.*

> Brave Macbeth, with his brandished steel,
> Like valour's minion, *carved* out his passage. *Id.*

I do mean to make love to Ford's wife; I spy entertainment in her; she discourses, she *carves*, she gives the leer of invitation. *Id.*

> In this kind, to come in braving arms,
> Be his own *carver*, and cut out his way,
> To find out right with wrong,—it may not be. *Id.*

How dares sinful dust and ashes invade the prerogative of Providence, and *carve* out to himself the seasons and issues of life and death. *South.*

> Yet fearing idleness, the nurse of ill,
> In sculpture exercised his happy skill;
> And *carved* in ivory such a maid, so fair,
> As nature could not with his art compare,
> Were she to work. *Dryden.*

The labourer's share, being seldom more than a bare subsistence, never allows that body of men opportunity to struggle with the richer, unless when some common and great distress emboldens them to *carve* to their wants. *Locke.*

They can no more last like the ancients, than excellent *carvings* in wood like those in marble and brass. *Temple.*

> Well then, things handsomely were served,
> My mistress for the strangers *carved*. *Prior.*

> Were any common booty got,
> 'Twas his each portion to allot;
> For why, he found there might be picking,
> Even in the *carving* of a chicken. *Gay.*

Had Democrates really *carved* mount Athos into a statue of Alexander the Great, and had the memory of the fact been obliterated by some accident, who could have afterwards have proved it impossible; but that it might casually have been? *Bentley.*

A CARVER, to cut up meat, was stiled by the Romans, carptor and carpus; sometimes scissor, scindendi magister, and structor. In the great families at Rome, the carver was an officer of some rank. There were masters to teach the art regularly, by figures of animals cut in wood. The Greeks also had their carvers, called δαιτροι, q. d. dedibitares, or distributors. In the primitive times, the master of the feast carved for all his guests. Thus in Homer, when Agamemnon's ambassadors were entertained at Achilles's table, the hero himself carved the meat. In Sparta, the office on solemn occasions was exercised by some of the chief men. In Scotland, the king has an hereditary carver in the family of Anstruther.

CARVER (Jonathan), was born at Connecticut, North America, in 1732. His father, who was a justice of peace, died when he was only five years of age; and his friends educated him in the medical line. But he preferred a military life; and joining the army, served with considerable reputation till the peace of 1763. He afterwards resolved on travelling, and the route he projected was to explore the interior of America, and to penetrate as far as the Pacific Ocean, which he accomplished, amidst innumerable difficulties, and published an Account of his Travels in 1776. After returning from his arduous journey, he came over to England, in hopes of some preferment, but was disappointed, and, to support himself and his family, was under the necessity of accepting the office of clerk of the lottery. He died in very poor circumstances, in 1780. Besides the Account of his Travels, he wrote an Essay on the Culture of Tobacco.

CARVING, in a general sense, the art or act of cutting or fashioning a hard body, by means of some sharp instrument, especially a chissel. In this sense carving includes statuary and engraving, as well as cutting in wood. But in the strict and limited sense, it is the art of cutting figures in wood. In this sense, according to Pliny, it is prior both to statuary and painting. To carve a figure, it must be first drawn or pasted on the wood. The rest of the block, not covered by the lines of the design, are then to be cut away with little narrow pointed knives. The wood fittest for the use is that which is hard, tough, and close, as beech, but especially box; to prepare it for drawing the design on, it is washed over with white lead tempered in water; which enables it either to bear ink or the crayon, or even to take the impression by chalking. When the design is to be pasted on the wood, this whitening is omitted. The printed side of the figure being wiped over with gum tragacanth dissolved in water, it is clapped smooth on the wood, and let dry; then wetted slightly over, and the surface of the paper gently fretted off, till all the strokes of the figure appear distinctly; after which the carver begins to cut out the figure.

CARUM, in botany, a genus of the digynia order, and pentandria class of plants; natural order, forty-fifth, umbellatæ. The fruit is ovate, oblong, and striated; the involucrum monophyllous: the petals are carinated or keel-shaped below, and marginated by their inflection. 1. C. carui, the caraway of the shops, grows naturally in many places of Britain. It is a biennial plant which rises from seeds one year, flowers the next, and perishes soon after the seeds are ripe. It has a strong aromatic taste, and a taper root like a parsnip, but much smaller, which runs deep into the ground, sending out many small fibres. From the root rise one or two smooth, solid, channelled stalks, about two feet high, garnished with winged leaves, having long naked foot stalks. C. hispanicum is also a biennial, and is a native of Spain. It rises with a stronger stalk than the former, which seldom grows more than a foot and a-half high; but is closely garnished with fine narrow leaves like those of dill. The seeds have an aromatic smell, and a warm pungent taste. They are used in cakes, incrusted with sugar, as sweetmeats, and distilled with spirituous liquors for the sake of the flavor they afford. They are in the number of the four greater hot seeds; and frequently employed as a stomachic and carminative, in flatulent colics, &c.

CARUNCULA, or CARUNCLE, in anatomy, is a term applied to several parts of the human body. See ANATOMY.

CARUNCULÆ PAPPILLARES, or MAMILLARES, little protuberances in the inside of the pelvis of the kidneys, made by the extremities of the tubes, which bring the serum from the glands in the exterior parts, to the pelvis. They are about the size of a pea, and were first observed by Carpus.

CARWAR, a seaport town in the province of North Canara, Hindostan. It was formerly a place of considerable commerce; the East India Company having had a factory here in 1673, but during the reign of Tippoo Saib, the town went entirely to decay. The terra japonica grows here below the Ghauts in abundance: and the Mahratta merchants purchase considerable quantities of salt at Carwar. The northern part of this district is but thinly inhabited, and the hills are very unproductive. Slaves are not found here. At the mouth of the river Carwar is a fort called Sedasiva Row, built by one of the Rajahs of Soonda, whose name it bears. It is fifty-four miles south by east from Goa. Lat. 14° 49 N., long. 74° 4′ E.

CARY (Lucius), lord viscount Falkland, was born in Oxfordshire, about A.D. 1610; a young nobleman of great abilities. About the time of his father's death, in 1633, he was made gentleman of the privy chamber to king Charles I. and afterwards secretary of state. Before the assembling of the long parliament, he had devoted himself to literature, and when called into public life, he stood foremost in all attacks on the high prerogative of the crown; but when civil convulsions came to an extremity, he defended the limited powers that remained to monarchy. Anxious however for his country, he seems to have dreaded equally the prosperity of the royal party, and that of the parliament; and among his intimate friends, often sadly reiterated the word—Peace. Yet he freely exposed his person for the king in all hazardous enterprises, and was killed in the thirty-fourth year of his age, at the battle of Newbury. He wrote—1. Speech on all Counsellors about the King. 2. Speech against Lord Keeper Finch and the Judges. 3. Speech against the Bishops. 4. Speech concerning Episcopacy. 5. A Discourse on the Infallibility of the Church of Rome; and a View of some Exceptions made gainst that Discourse. 6. A Letter to F. M.'s five Captious Questions propounded by a Factor of the Papacy, 4to.; and 7. A Letter to Dr. Beale, Master of St. John's College, Cambridge.

CARYA, or CARYAE, a town of Laconia, between Sparta and the borders of Messenia: where stood a temple of Diana, thence called Caryatis.

CARYATES, in antiquity, a festival in honor of Diana, held at Carya. The chief ceremony was a dance said to have been invented by Castor and Pollux, and performed by the virgins of the place. During Xerxes' invasion, the Laconians not daring to appear and celebrate the customary solemnity, to prevent incurring the anger of the goddess by such an intermission, the neighbouring swains are said to have assembled and sung bucolismi, or pastorals, which is said to have been the origin of bucolic poetry.

CARYATES, or CARYATIDES, from Carya, a city taken by the Greeks, who led away the women captives: and, to perpetuate their slavery, represented them in buildings as charged with burdens; and thus gave rise to the name of an order of columns or pilasters, under the figures of women, dressed in long robes, serving to support entablatures.

CARYL (Joseph), an eminent divine of the seventeenth century, bred at Oxford, and some time preacher to the society of Lincoln's Inn. He was a frequent preacher before the long parliament, a licenser of their books, a member of the assembly of divines, and one of the triers for the approbation of ministers; in all which capacities he showed himself a man of considerable parts and learning, but with great zeal against the king's person and cause. On the Restoration, he was silenced by the act of uniformity, and lived privately in London; where, besides other works, he dtstinguished himself by a laborious Exposition of the Book of Job; and died in 1672.

CARYLL (John), an English poet, of the Roman Catholic persuasion, secretary to queen Mary, the wife of James II., and one who followed the fortunes of his master, who knighted him. He was the author of two plays: 1. The English Princess, or the Death of Richard III., 1667, 4to. 2. Sir Salomon, or the Cautious Coxcomb, 1671, 4to; and in 1700 he published The Psalms of David, translated from the Vulgate, 12mo.

CARYOCAR, in botany, a genus of the tetragynia order, and polyandria class of plants: CAL. quinquepartite, the petals five, the styles most frequently four. The fruit is a plum, with nucleuses, and four furrows netted. Three species: West Indies, and South America; C. nuciferum yields a drupe of the size of a man's head, the nuts of which are eatable.

CARYOPHYLLÆUS, in zoology, a genus of the class vermes; order intestina. Body round; mouth dilated and fringed; clay-color; about an inch long. Inhabits the intestines of various fresh-water fishes.

CARYOPHYLLUS, in botany, the clove tree, a genus of the monogynia order, and polyandria class of plants: natural order nineteenth, hesperidea: COR. is tetrapetalous; CAL. tetraphyllous; the belly monospermous below the receptacle of the flower. Of this the principal species is C. aromaticus, which is a native of the Molucca Islands, particularly of Amboyna, where it is principally cultivated. The clove tree resembles, in its bark, the olive; and is about the height of the laurel, which it also resembles in its leaves. No verdure is ever seen under it. It has a great number of branches, at the extremities of which are produced vast quantities of flowers, that are first white, then green, and at last pretty red and hard. When they arrive at this degree of maturity, they are, properly speaking, cloves. As they dry, they assume a dark yellowish cast; and, when gathered, become of a deep brown. The season for gathering the cloves is from October to February. The boughs of the trees are then strongly shaken, or the cloves beaten down with long reeds. Large cloths are spread to receive them, and they are afterwards either dried in the sun, or in the smoke of the bamboo cane. The cloves which escape the notice of those who gather them, or are purposely left upon the tree, continue to grow till they are about an inch in thickness; and these falling off, produce new plants, which do not bear in less than eight or nine years. The clove, to be in perfection, must be full sized, heavy, oily, and easily broken; of a fine smell, and of a hot aromatic-taste, so as almost to burn the throat. It should make the fingers smart when handled, and leave an oily moisture upon them when pressed. In the East Indies, and in some parts of Europe, it is so much admired, as to be thought an indispensable ingredient in almost every dish. It is put into their food, liquors, wines, and enters likewise the composition of their perfumes. Cloves are very hot, stimulating, aromatics; and possess, in an eminent degree, the general virtues of substances of this class. Their pungency resides in their resin; or rather in a combination of resin with essential oil: for the spirituous extract is very pungent; but if the oil and the resin contained in this extract are separated from each other by distillation, the oil will be very mild; and any pungency which it does retain, proceeds from some small portion of adhering resin, and the remaining resin will be insipid. No plant, or part of any plant, contains such a quantity of oil as cloves do. From sixteen ounces, Newman obtained by distillation two ounces and two drams; and Hoffman obtained an ounce and an half of oil from two ounces of the spice. The oil is specifically heavier than water. Cloves acquire weight by imbibing water; and this they will do at some considerable distance. The Dutch, who trade in cloves, make a considerable advantage by knowing this secret. They sell them always by weight; and when a bag of cloves is ordered, they hang it, for several hours before it is sent in, over a vessel of water, at about two feet distance from the surface. The clove tree is never cultivated in Europe. At Amboyna the company have allotted the inhabitants 4000 parcels of land, on each of which they were at first allowed, and about the year 1720 compelled, to plant about 125 trees, amounting in all to 500,000. Each of these trees produces annually on an average more than two pound of cloves; and, consequently, the collective produce must weigh more than a million. The cultivator is paid with the specie that is constantly returned to the company, and receives some unbleached cottons, which are brought from Coromandel.

CARYOPHYLLUS, the pink. See DIANTHUS.

CARYOPHYLLUS, bennet. See GEUM.

CARYOTA, in botany, a genus of plants of the order monœcia, class polyandria: male CAL. common; COR. tripartite; the stamina very numerous; female one pistil, and a dispermous berry.

CASA (John de la), archbishop of Benevento, was born at Florence in 1503. He was educated at Bologna, and afterwards settled at Rome, where he was appointed clerk of the apostolical chamber in 1538. In 1544 he received the archbishopric of Benevento, and the same year was sent nuncio to Venice, where he displayed great diplomatic abilities. On account of his connexion with cardinal Farnese, he fell into disgrace under Julius III., but under Paul IV. he was made secretary of state. His principal work is entitled Galatea, or Art of Living in the World. He also wrote several beautiful Italian poems; the Lives of Cardinals Contarini and Bembo, &c. He died in 1556.

CASAL, a strong town of Italy, the capital of the duchy of Montferrat, having a citadel and bishop's see, and standing on the right bank of the Po. The principal traffic of the place is in cattle, pigs, and hams; the last of which are much esteemed for their fine flavor. This place has frequently changed masters, having been in possession of the Spaniards, the French, and the king of Sardinia. It has been under the last government since 1746. Long. 8° 19′ E., lat. 45° 12′ N.

CASAS (Bartholomew de las), bishop of Chiapa, was born at Seville, in 1474; and in 1493 sailed, together with his father, with Christopher Columbus, on his second voyage to Hispaniola. On his return to Spain he embraced the state of an ecclesiastic, and obtained a curacy in the island of Cuba, where he employed his time in endeavouring to convert the Indians, and in protecting them, as much as possible, from the cruelty of his countrymen. At last the court, moved by his continual remonstrances, passed several laws in favor of the Indians, and ordered the governors to see them executed. He died at Madrid, in 1566, aged ninety-two. His principal works are, An Account of the Destruction of the Indies; several Treatises in favor of the Indies, against Sepulveda, who wrote a book to justify the inhuman barbarities committed by the Spaniards; and also a very curious, and now scarce, work in Latin, on this question, Whether kings or princes can, consistently with conscience, or in virtue of any right or title, alienate their subjects, and place them under the dominion of another sovereign?

CASATI (Paul), a learned Jesuit, born at Placentia in 1617. After having taught mathematics and divinity at Rome, he was sent into Sweden to queen Christina, whom he prevailed on to embrace the Roman Catholic religion. He wrote, 1. Vacuum Proscriptum. 2. Terra Ma-

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chinis Mota. 3. Mechanicorum Libri Octo. 4. De Igne Dissertationes; which is much esteemed. 5. De Angelis Disputatio Theolog. 6. Hydrostaticæ Dissertationes. 7. Opticæ Disputationes. It is remarkable that he wrote this treatise on optics at eighty-eight years of age, and after he was blind. He also wrote several books in Italian. He died at Parma in 1707.

CASAUBON (Isaac), a learned divine and critic, born at Geneva in 1559. He was chosen professor of Greek at Geneva, when only twenty-three years of age; and in 1586 he married a daughter of Henry Stephens, the printer, by whom he had twenty children. Having continued at Geneva about twelve years, he afterwards went to fill the professor's chair at Montpellier; being dissatisfied with his situation, he removed to Paris, in hopes of a professorship which was promised him, but which he never obtained; and though a pension was granted him, it was ill paid. In 1600 he was one of the judges on the Protestant side, in the conference between cardinal du Perron and du Plessis Mornay, and gave his voice against the latter, from which it was thought he was going to change his party and religious opinion; and cardinal du Perron was directed to communicate with him in that view: but the result was the inflexible resolution of Casaubon to hold by the Protestant principles. His pension, however, was increased, and he was appointed librarian to the king in 1603. After the death of Henry IV. he went to England with Sir Henry Wotton, ambassador from king James I., where he was kindly received. King James settled a considerable pension on him, and gave him a prebend at Westminster, and another at Canterbury. He died in 1614, and was interred in Westminster abbey, where a monument was erected to him. He was the author of valuable notes on Diogenes Laertius, inserted in Stephens' edition of that author, 1594. Also the various readings, &c. of Theocritus, in Crispinus' Geneva edition. 3. Strabonis Geographiæ, &c. fol. Genev. 1587. 4. Novum Testamentum Græcum, 16mo. 1587, with notes. 5. Dionysius Halicarnassensis, &c. fol. Genev. 1588. 6. Polyæni Stratagematum Libri VIII, 16mo. 1589. 7. Dicæarchi Geographica, &c. 8vo. Genev. 1589. 8. Aristotelis Opera, &c. fol. Genev. 1605. 9. C. Plinii et Epistolæ, &c. 12mo. Genev. 1591. 10. Theophrasti Characteres, &c. 12mo. 1592. 11. Apuleii Apologia, &c. 4to. 1593. 12. C. Suetonii Tranquilli Opera, 4to. Genev. 1595, Paris. 1610. 13. Publ. Syri Mimi, &c. 8vo. 1598. 14. Athenæi Deipnosophist, &c. 2 vols. fol. Genev. 1597. 15. Historiæ Augustæ Scriptores, 4to. Paris. 1603. 16. Persii Satyræ, &c. 8vo. Paris. 1605, Lond. 1647. 17. De Satyricæ Græcorum, &c. 8vo. Paris. 1605. 18. Polybii Opera, &c. fol. Paris. 1609. 19. Josephi Scaligeri Opera, 4to. Paris. 1610, Francof. 1612. 20. De Rebus Sacris et Ecclesiasticis Exercitationes XVI.

CASAUBON (Meric), the son of Isaac, was born at Geneva in 1599. He was bred at Oxford, and took the degree of M. A. in 1621. The same year he published a book in defence of his father, against the calumnies of certain Roman Catholics; which gained him the favor of king James I. and a considerable reputation abroad. He was made prebendary of Canterbury by archbishop Laud. In the beginning of the civil war he lost all his promotions, but still continued to publish. Oliver Cromwell, then lieutenant-general of the parliament's forces, would have employed him in writing the history of the war; but he declined it, owning, that his subject would oblige him to make such reflections as would be ungrateful, if not injurious, to his lordship. Notwithstanding this answer, Cromwell, sensible of his worth, ordered £300 or £400 to be paid him by Cromwell, a bookseller in London, on demand, without requiring from him any acknowledgment. But this offer he rejected, though his circumstances were then low. At the same time it was proposed by his friend Mr. Greaves, who belonged to the library at St. James's, that if Casaubon would gratify Cromwell, all his father's books (which were then in the royal library, having been purchased by king James) should be restored to him, and a pension of £300 a year paid to the family, as long as the youngest son of Dr. Casaubon should live; but this also was refused. He likewise refused handsome offers from Christina queen of Sweden, being determined to spend the remainder of his life in England. At the Restoration he recovered all his preferments, and continued writing till his death in 1671. He was the author of an English translation of Antoninus's Meditations, and of Lucius Florus; editions of several of the classics, with notes; with many other works: and he left a number of MSS. to the university of Oxford.

CASCABLE, the knob or button of metal, behind the breech of a cannon, as a sort of handle whereby to elevate and direct the piece. The neck of the cascable is the part which joins it to the breech-mouldings; its diameter is three-quarters of a calibre; that of the button something more than a calibre. The length of the cascable is always two calibres and a quarter.

CAS'CADE, Fr. *cascade*; Ital. *cascata*; from *cascare*, to fall. A cataract; a water-fall; generally applied to those which are either artificial, or of minor or secondary importance.

> Rivers diverted from their native course,
> And bound with chains of artificial force,
> From large *cascades* in pleasing tumult rolled,
> Or rose through figured stone, or breathing gold.
>
> *Prior.*

> The river Teverone throws itself down a precipice, and falls by several *cascades* from one rock to another, till it gains the bottom of the valley.
>
> *Addison.*

CASCADES are either natural, as that at Tivoli, &c. or artificial, as those at Versailles, &c. and either fall with gentle descent, as those of Sceaux; or in form of a busset, as at Trianon; or down steps, in form of perron, as at St. Cloud; or from bason to bason, &c.

CASCHROM, a kind of lever, or crooked spade, used instead of the plough, upon rocky ground, in the island of Barray.

CASE, *v.* & *n.*
CA'SE-KNIFE, *s.*
CA'SE-HARDEN,
CA'SE-SHOT,
CA'SE-WORM.

Fr. *caisse*; Ital. *cassa*; Span. *caxa*; Lat. *capsa*; Καμψα. Such are the derivations from the southern languages. Those from the northern are equally close. Mœs. Goth. *kas;* Sw. *kasse;* Hung. *kass;* Ic. *cash;* Dutch *kas;* Scot. *cassie.* All of which mean something that contains. A case is primarily, that which covers or contains any thing else; as a covering; a box; a sheath. In its secondary meanings, it still clearly refers to the idea of including. It indicates condition with respect to external circumstances; the state of things, of the body, or of disease; a statement of a disease; a narrative, or question, submitted to a barrister, for his opinion; the condition of the body, with respect to plumpness or leaness; a contingence; a possible event; a particular instance; representation of any fact or question; and the change in the terminations of nouns. In case, is a form of supposition, meaning if it should happen. Johnson says, this is a form of speech now little used: but why he says so, is not apparent, the phrase being still frequently heard. To case is, to inclose in a case; to envelope as a case does; to put on an exterior covering of materials, different from those of the interior; and, lastly, but unusually, to uncover [illegible] skin. The neuter verb is employed only ludicrously, in the signification of putting cases, containing representations of facts.

And such a *case* betide, and that as fast,
That Troilus wel understode that she
Na's nat so kinde as that hire ought to be;
And, finally, he wote, now out of dout
That al is lost that he hath ben about.
Chaucer. Troilus and Creseide.

Unworthy wretch, quoth he, of so great grace,
How dare I think such glory to attain?
These that have it attained were in like *case,*
Quoth he, as wretched, and lived in like pain.
Spenser.

Well, I do find each man most wise in his own *case.*
Sidney.

Heart, once be stronger than thy continent,
Crack thy frail *case.* *Shakespeare.*

Question your royal thoughts, make the *case* yours.
Id.

Thou lyest, most ignorant monster, I am in *case* to justle a constable. *Id.*

Case ye, *case* ye, on with your vizors. *Id.*

Thy cry went once for thee,
And still it might, and yet it may again,
If thou would'st not entomb thyself alive,
And *case* thy reputation in a tent. *Id.*

For in *case* it should be certain, hard it cannot be for them to show us where we shall find it; that we may say, that these were the orders of the apostles.
Hooker.

It was well; for we had rather met with calms and contrary winds, than any tempests; for our sick were many, and in very ill *case.* *Bacon.*

If he be not apt to beat over matters, and to call up one thing to prove and illustrate another, let him study the lawyer's *cases;* so every defect of the mind may have a special receipt. *Id.*

A sure retreat to his forces, in *case* they should have an ill day, or unlucky chance in the field. *Id.*

In each, seven small brass and iron guns, charged with *case-shot.* *Clarendon.*

Quoth Ralph, I should not, if I were,
In *case* for action, now be here. *Hudibras.*

The low-roofed tortoises do dwell
In *cases* fit of tortoise-shell. *Marvell.*

Each thought was visible that rolled within,
As through a crystal *case* the figured hours are seen.
Dryden.

Some knew the face,
And all had heard the much lamented *case.* *Id.*

Pray have but patience till then, and when I am in a little better *case,* I'll throw myself in the very mouth of you. *L'Estrange.*

They presently fall to reasoning and *casing* upon the matter with him, and laying distinctions before him. *Id.*

Cadises, or *case-worms,* are to be found in this nation, in several distinct counties. *Floyer.*

Just then, Carissa drew, with tempting grace,
A two-edged weapon from the shining *case.* *Pope.*

My youth may be made, as it never fails in executions a *case* of compassion.
Id. Preface to his Works.

The *case* of the holy house is nobly designed, and executed by great masters. *Addison.*

The king always acts with a great *case-knife* stuck in his girdle, which the lady snatches from him in the struggle, and so defends herself. *Id.*

Your parents did not produce you much into the world, whereby you have fewer ill impressions; but they failed, as is generally the case, in too much neglecting to cultivate your mind. *Swift.*

The priest was pretty well in *case,*
And shewed some humour in his face. *Id.*

Chalybeate water seems to be a proper remedy in hypochondriacal *cases.* *Arbuthnot.*

The atheist, in *case* things should fall out contrary to his belief or expectation, has made no provision for this *case.* *Tillotson.*

The *case* is plain, the monarch said,
False glory hath my youth mislead. *Gay.*

Love calls me hence, a favourite cow
Expect me near yon barley-mow,
And when a lady's in the *case,*
You know all other things gives place. *Id.*

For who, to thoughtless ignorance a prey,
Neglects to hold short dalliance with a book?
Who there but wishes to prolong his stay,
And on those *cases* cast a lingering look.
Duncombe.

Indeed! Pray which of the houses use you ill?—There's the Red Lion an't half so civil as the Old Red Lion. There's the White Horse, if he wasn't *case-hardened,* ought to be ashamed to show his face.
Sheridan.

CASE, in grammar. See GRAMMAR.

CASE, in printing, a large flat oblong frame placed aslope, divided into several little square cells; in each of which are lodged a number of types of the same kind, whence the compositor takes them out, as he needs them, to compose his matter. See PRINTING.

CASEARIA, in botany, a genus of plants of the class decandria, order monogynia. CAL. five-leaved: COR. none; nectary four or five-leaved, alternating with the stamens: CAPS. berried within, three-valved, one-celled: SEEDS wrapped in a pulpy pellicle. Species twelve, ten natives of the West Indies and South America; the other two natives of India.

CASE-HARDENING, is a superficial conversion of iron into steel, by cementation with vegetable or animal coals. This operation is generally practised upon small pieces of iron

made came to be converted into all window. Others refer it to A casement is a little moveable dy within a larger, turning on ially glazed with glass or [illegible] instead.

ut may leave a casement of the great
ow where we play, open, and the moon
at the casement.
Shakspeare. Midsummer Night's Dream.

pened with the moon, and fly
e room to window over,
prudent fall, the casement,
s but yet with some amazement.
Hudibras.

d pence the flying Nicker flings,
copper shower the casement rings. *Gay.*

e rogues who, at a distance,
mass throws out of a casement;
an do for your assistance
afford you one amusement. *J. H. Stevenson.*

ASE, or CASEMATE, in architecture, a moulding, which some architects make of a circle, and others a one-fourth.

EOUS, *adj.* Lat. *caseus;* resembling cheesy.

ome parts are from the serous parts of the
Floyer on the Humours.

ERN, *n.* Fr. *caserne;* a lodgment erected en the rampart and the houses of fortified to serve as apartments or lodgings for the rs of the garrison. They have usually two in each, for six soldiers, who mount guard ately; the third part being always on duty.

ASH, *v.* & *n.* | Fr. *caisse, cassa;* Ital.
SHIER, *n.* | *cassa;* Span. *caxa;* Goth.
SH-BOOK, *n.* | *kista;* Dutch, *kist, kas;*
SH-KEEPER, *n.* | Swed. *cassa;* Lat. *capsa;*

ney in hand, or in a coffer; coin. By a nymical figure, the container is put for the ng contained. To cash is to give money for note of hand, or other mercantile security. ashier and cashkeeper signify the person who the charge of the money; the receiver and ayer. The first of these two words is that which now most in use.

A thief, bent to unhoard the cash
Of some rich burgher. *Paradise Lost.*

If a steward or cashier be suffered to run on, with bringing him to a reckoning, such a sottish forbearance will teach him to shuffle. *South.*

of cash, or notes, he'll never mind,
And knows no losses, while the muse is kind. *Pope.*

He sent the thief, that stole the cash away,
And punish'd him that put it in his way. *Id.*

Dispensator was properly a cashkeeper, or paymaster. *Arbuthnot.*

If cash run low, his funds in fee,
Are, or for sale or mortgage, free. *Gay.*

[illegible] don't rule, ambition, and such alone,
Cash rules the grove, and fells it too besides;
Without cash camps were thin, and courts were none;
Without cash, Malthus tells you "Take no brides."
So cash rules love the ruler, on his own
High ground, as virgin Cynthia sways the tides.
Byron. Don Juan.

A fellow in a market town,
st musical, cried razors up and down,

And offered twelve for eighteen-pence;
Which certainly seemed wonderous cheap.
And for the money quite a heap,
As every man would buy with *cash* and sense.
Wolcot.

Cash, or Cash'ier, *v.* Fr. *casser*; Lat. *cassare*. To discard; to dismiss with reproach. It is now mostly used to express the breaking of an officer. There is another sense of the word, equivalent to annulling or vacating; as appears in the quotations from South and Locke.

Does't not go well? Cassio hath beaten thee;
And thou by that small hurt hast *cashiered* Cassio.
Shakspeare.

And thereupon *cashing* the greatest part of his land army, he only retained one thousand of the best soldiers. *Gorges.*

Seconds in factions many times prove principals; but many times also they prove cyphers, and are *cashiered.* *Bacon.*

If I had omitted what he said, his thoughts and words being thus *cashiered* in my hands, he had no longer been Lucretius. *Dryden.*

If we should find a father corrupting his son, or a mother her daughter, we must charge this upon a peculiar anomaly and baseness of nature; if the name of nature may be allowed to that which seems to be utter *cashiering* of it, and deviation from, and a contradiction to, the common principles of humanity. *South.*

Some *cashier*, or at least endeavour to invalidate, all other arguments, and forbid us to hearken to those proofs, as weak or fallacious. *Locke.*

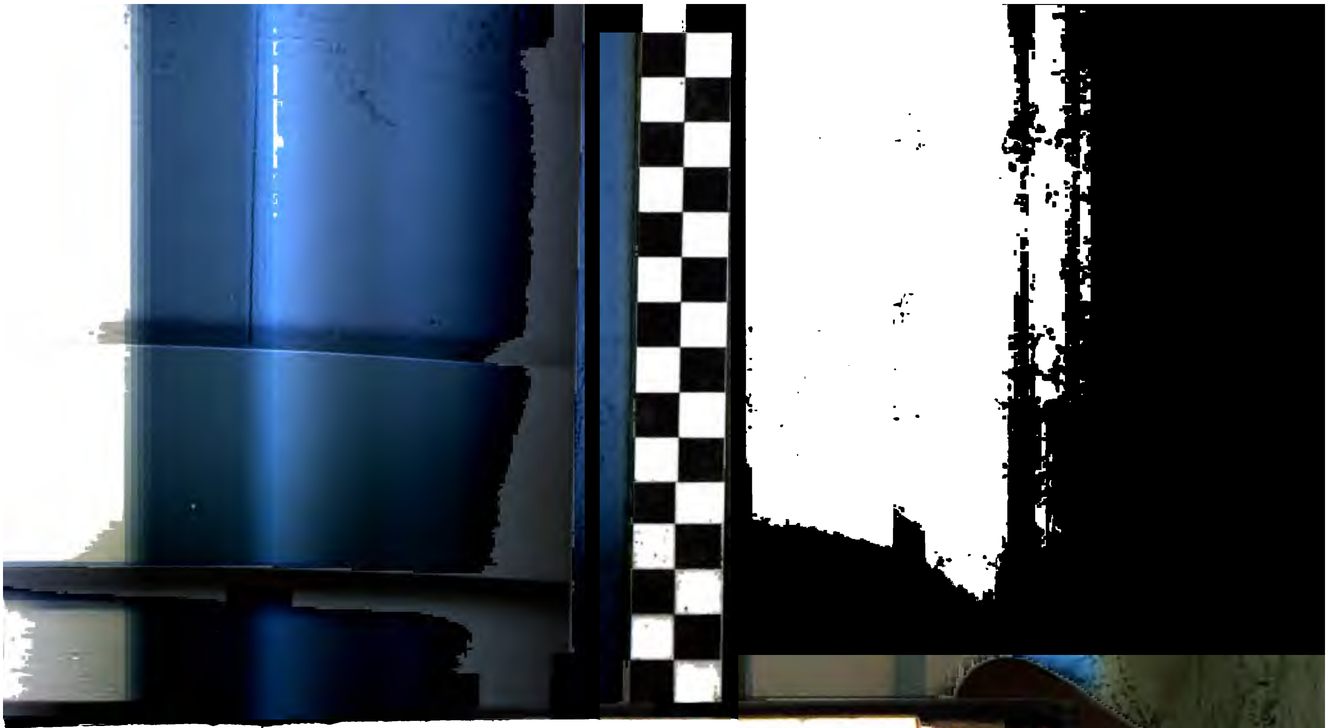
The ruling rogue, who dreads to be *cashiered*,
Contrives, as he is hated, to be feared. *Swift.*

CASHELL, or Cashel, a well built city of Tipperary, about three miles from the river Suir. It is the see of an archbishop; and it formerly contained a palace in which the kings of Munster resided. The fine ruins of an old Gothic cathedral, supposed to have been built by St. Patrick, are worthy of notice. It is said to have been the first stone edifice in Ireland. Its appearance, together with the ruins of Cormac's chapel, and hall of audience, is extremely picturesque, being built on the edge of a steep rock. The tomb of Cormac is seen in this chapel. At the east angle of the building stands a lofty round tower, the architecture of which is a great curiosity, particularly the roof, which is formed of stones so admirably jointed that it appears perfectly smooth, as if covered with a fine cement. The tower is fifty-four feet in circumference, five stories high, and communicates with the chapel by subterranean passages. The modern buildings worthy of note are the cathedral, of Grecian architecture, the archbishop's palace, a plain but commodious building, containing an excellent library, and many curious manuscripts; a handsome market-house, a session's house, a county infirmary, a charter school handsomely endowed, and barracks for foot soldiers. It is a corporate town, and sends one member to the imperial parliament. It is seventy-six miles from Dublin

CASHMERE, the ancient Aspira, a province of northern Hindostan, now belonging to Afghaunistaun. Its form is nearly oval: tradition says, with some appearance of truth, that it was once a large lake or bason, and that the waters forced themselves a passage into the river Jhelum. It forms a very beautiful and fertile valley, of about ninety miles in length and forty in breadth, bounded on the north and north-east by the Himmaleh mountains, on the south and south-east by Kishtewar, and on the west and south-west by Lahore, Pounce, Muzufferhabad, &c. Its limits towards the last country are a low thick wood, skirted by a rivulet.

Eastern writers speak of this valley as a perpetual paradise: it is 'well watered everywhere' certainly, and its natural defences are at once magnificent and strong. Roses, violets, and innumerable species of flowers, grow wild; and venomous reptiles, so common in various surrounding countries, are here unknown. The principal streams are the Jhelum, and the Chota Singh. The chief towns, Cashmere, Sampre, and Islamabad. The mountains, for the most part, are covered with trees and verdure, affording excellent pasture for cattle. Amongst them are many romantic valleys, the inhabitants of which have scarcely any communication with the plains; and on account of their poverty, and the inaccessible situation of their dwellings, never have been subdued. The vale of Cashmere itself is generally flat, and very fertile in rice, the general food of the districts. Wheat and barley are cultivated at the foot of the hills, where also all the fruits of Europe flourish. A superior saffron is also produced in Cashmere, and iron of an excellent quality abounds in some of the mountains. The sengerah, or water-nut, of the lakes, forms a portion of the food of the lower class. The shawls of Cashmere are manufactured from wool of the goats of Thibet. It is, when imported, of a dark gray tint, and bleached in Cashmere by a preparation of the flour of rice. No other wool but that of Thibet ever succeeds in this manufacture. The piece, which in the weaving always has the rough side downwards, generally weighs from ten to twelve pounds; the borders are joined on afterwards. Plain shawls are woven by two men; the flowered or spotted ones require a third assistant; and the manufacture is so slow, that not more than a quarter of an inch of the finest sort is made in the course of a day. Sixteen thousand looms are said to be employed upon this manufacture; and 80,000 shawls are made annually. The revenue of the province is frequently transmitted in these to Cabul. Here also is made the finest writing paper of the east: the other exports are, sugar, paper, lacquered ware, otto of roses, and drugs. The natives are remarkably ingenious and acute; white, robust, and well made: the females have been long celebrated for their beauty. The whole country does not contain more than 500,000 inhabitants.

Cashmere, or Serinaghur, the capital of the above province, stands on each side of the river Jhelum, over which there are five wooden bridges: the breadth of the city is irregular, in some places being nearly two miles; and it extends about three miles on each side of the Jhelum. It is without fortifications, but there is a citadel, called Shore Ghur, in the south-east quarter, where the governor resides. The houses are chiefly of wood, with walls of brick and mortar: and on



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the wooden roofs a bed of fine earth is seen, which in the summer is sown with flowers. The streets are narrow, and choked with filth. The public buildings are unimportant; but in the neighbourhood are the remains of several handsome palaces, built by the Hindostanee emperors. In the north-east quarter of the town is the Dall Lake, an oval of five or six miles in circuit, and communicating with the Jhelum by a narrow channel. On the east side of this beautiful sheet of water is a detached hill, called Tukhti Solomon, on which stands a mosque, dedicated to king Solomon. In the centre is an island, containing the palace Shah al imaret, or 'prince of building.' Here its founder, the emperor Jehangire, and his successor Shah Jehan, retired from the heat and bustle of an Indian court, to enjoy the delightful tranquillity of this almost unearthly scene. Cashmere is 587 travelling miles from Lahore, 1564 from Calcutta, and 1822 from Madras.

CASHOO, a medicinal and aromatic drug, used in Hindostan by the natives, who chew it either alone, or mixed with areca. It is extracted from a tree called catee, by decoction, maceration, and evaporation. It is said to strengthen the stomach, sweeten the breath, stop coughing, fasten loose teeth, &c. Kempfer says it is prepared at Odowara, in the various forms of pills, flowers, small idols, &c.

CASI, in the Persian police, one of the two judges under the nadab, who decide all religious matters, grant divorces, &c., and have deputies in all cities of the kingdom.

CASIMIR (Matthias Sorbiewski), a Polish Jesuit, born in 1597. He was a most excellent poet. His odes, episodes, and epigrams, have been thought equal to those of the finest wits of Greece and Rome. Dr. Watts has translated one or two of his small pieces, which are added to his Lyric Poems. He died at Warsaw in 1640, aged forty-three. The best edition of his poems is that of Paris, 1759.

CASING OF TIMBER WORK, among builders, is the plastering the house all over the outside with mortar, and then striking it while wet by a ruler, with the corner of a trowel, to make it resemble the joints of free-stone.

CASK, *v.* & *n.* } Fr. *casque*; It. and Sp.
CASK'ET, *v.* & *n.* } *casco*; Lat. *cadus, cassis.*
Serenius refers the word case to Mœs. Goth. kas, vas, vasculum; and it seems probable that cask is from the same root. A cask, in the common usage of the word, signifies a barrel or vessel of wood, to contain liquor or provisions. Poetically, it is a helmet, a head-piece. The diminutive casket, is a small box, in which to deposit jewels, or things of value.

Great inconveniences grow by the beer *casks* being commonly so ill-seasoned and conditioned, as that a great part of the beer is ever lost and cast away.
Raleigh.

Beer, if it be over new or over stale, over strong or not sod, smell of the *cask*, sharp or sour, is most unwholesome. *Burton. Anat. Mel.*

Let thy blows, doubly redoubled,
Fall like amazing thunder on the *casque*
Of thy pernicious enemy. *Shakspeare.*

They found him dead and cast into the streets,
An empty *casket*, where the jewel, life,
By some damned hand was robbed and ta'en away.
Id.

I have writ my letters, *casketed* my treasure, and given order for our horses. *Id.*

Mine eye hath found that sad sepulchral rock,
That was the *casket* of heaven's richest store. *Milton.*

Perhaps to-morrow he may change his wine,
And drink old sparkling Alban or Setine,
Whose title, and whose age, with mould o'ergrown,
The good old *cask* for ever keeps unknown. *Dryden.*

And these
Sling weighty stones, when from afar they fight:
Their *casques* are cork, a covering thick and light. *Id.*

Why does he load with darts
His trembling hands, and crush beneath a *cask*
His wrinkled brows? *Addison.*

This *casket* India's glaring gems unlocks,
And all Arabia breathes from yonder box. *Pope.*

In the host of Xerxes they served on foot; and their arms were a dagger, or a javelin, a wooden *casque*, and a buckler of raw hides. *Gibbon.*

Ten thousand *casks*
For ever dribbling out their base contents,
Touch'd by the Midas finger of the state,
Bleed gold for ministers to sport away. *Cowper.*

CASKET. See CABINET.

CASKETS, in the sea language, are small ropes made of finnet, and fastened to gromets, or little rings upon the yards, to make fast the sail to the yard when it is to be furled.

CASLON (William), an eminent letter-founder, born in 1692, in Hales Owen, Shropshire. He served an apprenticeship to an engraver of ornaments on gun-barrels; and carried on this trade in Vine-street, near the Minories. He also exercised his ingenuity in making tools for the bookbinders, and for the chasing of silver plate. While he was thus engaged, Mr. Bowyer accidentally saw the lettering of a book which he thought uncommonly neat; and enquiring who the artist was that made the letters, was led to cultivate an acquaintance with him. Not long after, Mr. Bowyer took him to see Mr. James's foundry. Caslon had never before seen any part of the business; and being asked by his friend if he thought he could cut types, he requested a day to consider the matter, and then replied that he had no doubt but he could. Upon this, Messrs. Bowyer, Bettenham, and Watts, had such confidence in his abilities that they lent him £500, and he applied himself to his new business with equal assiduity and success. In 1720 the Society for Promoting Christian Knowledge deemed it expedient to print the New Testament and Psalter in the Arabic language, for the benefit of the poor Christians in Palestine, Syria, Mesopotamia, Arabia, and Egypt; and Mr. Caslon was appointed to cut the fount; he distinguished his specimens by the name of English Arabic. He arrived at length to such perfection in type founding, that he not only freed us from the necessity of importing types from Holland, but, in the beauty and elegance of those made by him, he so far exceeded the productions of the best artificers, that his types were exported to the continent; and his foundry became one of the most celebrated in Europe. He died in 1766.

CASPIAN Sea, a large central lake of Asia, bounded by the province of Astrakhan on the north, and by Persia on the south-east and west. It is upwards of 400 miles long from south to north, and 300 broad. It forms several gulfs, and contains between Astrakhan and Astrabad an incredible number of small islands. Its bottom is mud, but sometimes mixed with shells. At the distance of some miles from land it is 500 fathoms deep; but on approaching the shore it is everywhere so shallow, that the smallest vessels, if loaded, are obliged to remain at a distance. Being enclosed on all sides by land, and its banks being in the neighbourhood of very high mountains, its navigation is perfectly different from that of every other sea. Certain winds prevail with such absolute sway, that vessels are often deprived of every resource; and in its whole extent there is scarcely a port that can be called safe. The north, the north-east, and the east winds, blow frequently, and occasion most violent tempests. Along the eastern shore the east winds prevail; for which reason vessels bound from Persia to Astrakhan always direct their course along this shore. Although the extent of this sea is immense, the variety of its productions is exceedingly small. This undoubtedly proceeds from its want of communication with the ocean, which cannot impart to it any portion of its inexhaustible stores. But the animals which it nourishes multiply to such a degree, that the Russians, who alone are in condition to make them turn to account, justly consider them as a never-failing source of profit and wealth. Its fisheries are the sole occupation of the people inhabiting the banks of the Wolga and the Jaik. Salmon, sturgeon, and other fish, abound in all parts, as well as in the rivers that communicate with it, and which they ascend at spawning time. Seals also are extremely numerous. The varieties of the species are diversified, however, only by the color. Some are quite black, others white; some whitish, yellowish, &c., and some streaked like a tiger. See Phoca. They crawl upon the islands, where the fishermen kill them with long clubs. One is hardly despatched when others come to his assistance and share his fate. They are exceedingly tenacious of life, and endure more than thirty hard blows before they die. They will even live for several days after having received many mortal wounds. At Astrakhan a sort of gray soap is made of their fat mixed with pot-ashes, which is much valued for its property of cleansing and taking grease from woollen stuffs. The greatest numbers are killed in spring and autumn. Many small vessels go from Astrakhan merely to catch seals. The only shell fish, found in the Caspian, are three or four species of cockle, the common muscle, some species of snails, and one or two others. It abounds, however, in birds of different kinds. Geese, ducks, storks, herons, crows, &c. frequent the shores. Of birds properly aquatic, it contains the grebe, the crested diver, the pelican, the cormorant, and almost every species of gull. The waters are very impure, the nature of its bottom affecting it greatly. In general, indeed, they are salt; but the saltness is diminished by the north, the north-east, and north-west winds; the north winds often causing the rivers to discharge into it vast quantities of troubled water impregnated with clay. These variations, to which the sea is exposed, are more or less considerable, according to the nature of the winds; they affect the color of the river waters to a certain distance from the shore, till these mixing with those of the sea, which then resume the ascendancy, the fine green color appears, which is natural to the ocean. It is well known that, besides its salt taste, all sea water has a sensible bitterness, which must be attributed not only to the salt itself, but to the mixture of different substances that unite with it, particularly to different sorts of alum, the ordinary effect of different combinations of acids. The waters of the Caspian have a peculiar acrid taste, which affects the tongue with an impression similar to that made by the bile of animals: a property, of which this sea is not equally perceptible at all seasons. When the north and north-west winds have raged for a considerable time, this taste is sensibly felt; but when the wind has been south, very imperfectly. To account for this phenomenon, we must observe, that the Caspian is surrounded on its west side by the mountains of Caucasus, which extend from Derbent to the Black Sea. These abound with combustible and mineral substances; and springs of naphtha are common at the foot of them. It is chiefly to the naphtha that we must attribute the cause of the bitterness peculiar to its waters; and it is certain, that the north and north-west winds detach the greatest quantities of it. But it is not a bitter taste alone, that the naphtha communicates to the waters of the Caspian: these waters were analysed by M. Gmelin, and found to contain, besides the common sea-salt, a considerable proportion of Glauber salt, intimately united with the former, and which is evidently a production of the naphtha. As the waters of the Caspian have no outlet, they are discharged by subterranean canals through the earth, where they deposit beds of salt; the surface of which corresponds with that of the level of the sea. The two great deserts which extend from it to the east and west, are chiefly composed of saline earth, in which the salt is formed by efflorescence into regular crystals; for which reason salt showers and dews are exceedingly common in that neighbourhood. The salt of the marshes at Astrahkan, and that found in efflorescence in the deserts, are by no means pure sea-salt, but much debased by Glauber salt. In many places, indeed, it is found with crystals of a lozenge shape, which are peculiar to it, without any cubical appearance, like those of sea salt. A great deal has been written on the successive augmentation and decrease of the Caspian Sea, but with little truth. There is indeed a certain rise and fall of its waters, but in which no observation has ever discovered any regularity. Many suppose, it is not improbable, that the shores of the Caspian were much more extensive than at present, and that it once communicated with the Black Sea. It is probable too, that the level of this last was formerly much higher. If then it be allowed, that the waters of the Black Sea, before it procured an exit by the Straits of Constantinople, rose several fathoms

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above their present level, which, from many concurring circumstances, may easily be admitted, it follows, that all the plains of the Crimea, the Kuman, the Wolga, and the Jaik, and those of Great Tartary beyond the lake of Aral, in ancient times formed but one sea, which embraced the north extremity of Caucasus by a narrow strait of little depth; the vestiges of which are still obvious in the river Mantysch.

CASS, or
CAS'SATE, *v.* & *n.* } Fr. *casser*; low Lat. *cassare*. To vacate; invalidate; make void; nullify. Cassation is the act of making null and void
CAS'SATION, *n.*

To *cass* all old and unfaithful hands, and entertain new. *Raleigh.*

This opinion supersedes and *cassates* the best medium we have. *Ray.*

CASSANA (John Augustine), an eminent painter, was born in 1664; and educated, together with his brother Nicholas, by their father John Francis Cassana, a Genoese. His principal works were paintings of animals and fruits, and in that style he arrived at a high degree of eminence, imitating nature with exactness, beauty, and truth, and expressing the various plumage of his birds, and the hairs of the different animals, with great delicacy. At last he determined to visit Genoa, where his family had lived in esteem; and took with him several pictures which he had already finished. But by attempting to appear as a person of greater wealth and consequence than he really was, and by giving presents of pictures to several of the principal nobility of that city, he unhappily reduced himself to the most necessitous circumstances, and was almost deprived of the means to procure even the necessaries of life. He died in 1718.

CASSANA (Nicholas, or Nicoletto), an eminent Italian painter, brother to the preceding, was born at Venice in 1659. He soon distinguished himself by the beauty of his coloring, the gracefulness of his figures in historical compositions, as well as portrait; in which last he peculiarly excelled. People of the first rank were anxious to obtain their portraits. The grand duke of Tuscany invited Nicoletto to his court; where he painted the portraits of that prince, the princess his consort, and many of the principal nobility of Florence. Among other historical subjects, he executed a very beautiful design, on the Conspiracy of Catiline. Nicoletto was at last invited to England, and introduced to queen Anne, to paint her portrait; but he did not enjoy his good fortune long, as he died in London, in 1713.

CASSANDER, king of Macedon after Alexder the Great, was the son of Antipater. He made several conquests in Greece, abolished democracy at Athens, and gave the government of that state to the orator, Demetrius Phalereus. Olympias, the mother of Alexander, having caused Aridæus and his wife Euridyce, with others of Cassander's party, to be put to death; he besieged Pydne, whither the queen had retired, took it by stratagem, and slew her. He married Thessalonice, the sister of Alexander; and killed Roxana and Alexander, the wife and son of that conqueror. At length he entered into an alliance with Seleucus and Lysimachus, against Antigonus and Demetrius; over whom he obtained a great victory near Ipsus, in Phrygia, A.A.C. 301, and died three years after, in the nineteenth year of his reign.

CASSANDRA, in fabulous history, the daughter of Priam and Hecuba, was beloved of Apollo, who promised to bestow on her the spirit of prophecy, provided she would consent to his love. Cassandra seemed to accept the proposal; but had no sooner obtained that gift, than she laughed at the tempter, and broke her word. Apollo, being enraged, revenged himself by causing no credit to be given to her predictions; hence she in vain prophesied the ruin of Troy. Ajax, the son of Oileus, having ravished her in the temple of Minerva, he was struck with thunder. She fell into the hands of Agamemnon, who loved her to distraction; but she predicted to him in vain, that he would be assassinated in his own country. He was killed, with her, by the intrigues of Clytemnestra; but their death was avenged by Orestes.

CASSANDRA, in natural history, a very elegant sea-shell of the concha globosa kind, more usually known by the name of the lyra or harp shell.

CASSANO, a town of Italy in the Milanese, late in the republican department of the Adda, rendered memorable by an obstinate battle, fought between the Germans and French in 1705. It is seated on the Adda.

CASSAVI. See JATROPHA.

CASSAY, a province in the Burmhan empire, bounded on the north by Cachar and Assam, on the east by the river Keenduem, south by Arracan, and west by Bengal. It lies in about the 24° of north latitude. The capital is Munipoor. The natives are called Katthee by the Burmhans, and much resemble the native tribes of Hindostan. Many of them, formerly prisoners of war, are now settled in the neighbourhood of Unimerapoora, where their skill as artisans obtains them a comfortable living. They are the gunsmiths of the whole Burmhan empire, and the only cavalry employed in their armies. Their music is said to be remarkably pleasant to the English ear. See BURMHAN EMPIRE.

CASSEL, a considerable town of Germany, the capital of the electorate, and the residence of the elector of Hesse Cassel. It is situated on the river Fulda, in Lower Hesse, and is divided into the Old Town, the Lower New Town, and the Upper New Town. Few places contain more numerous or more elegant public buildings than the last The principal are the state house, the foundry, the arsenal, the parade square, the barracks, the church of St. Martin, public library, and new house of correction. Strangers also are much pleased with the public gardens, the orangery, baths, and menagerie. The noble castle of Weissenstein is about half a mile out of the town, and is a most princely seat. In the Upper New Town is the school, called Collegium Carolinum, founded in 1709. The museum is very rich in antiquities. There are manufactories here of china and woollen stuffs, but the trade of the town is small. During the seven years' war it was long the head-quarters of the French. The fortifications were afterwards destroyed and have not been renewed; the gates were removed to the extremity of the old out-works, and the space thus cleared was laid out in streets, gardens, and promenades. Population in 1810, 20,300. Cassel was the capital of Jerome Buonaparte's kingdom of Westphalia. It is fifty miles south-east of Paderborn, and eighty-four north-east of Coblentz.

CASSIA, in botany, a genus of the monogynia order and decandria class of plants; natural order thirty-third, lomentaceæ: CAL. pentaphyllous; petals five; antheræ upper three barren; lower three beaked: a leguminous plant. There are fifty-nine known species, all natives of warm climates. The most remarkable are, 1. C. fistula, the purging cassia of Alexandria. It is a native of Egypt and both Indies, where it rises to the height of forty or fifty feet. The flowers are produced at the end of the branches, each standing upon a long foot-stalk; these are composed of fine yellow concave petals, which are succeeded by cylindrical pods from one to two feet long, with a dark brown woody shell, divided into many cells by transverse partitions, each containing one or two oval, smooth, compressed seeds, lodged in a blackish pulp, which is used in medicine. There are two sorts of this drug in the shops; one brought from the East Indies, the other from the west. The pods should be chosen weighty, new, not rattling (from the seeds being loose within them) when shaken. The pulp should be of a bright shining black color, and a sweet taste. Greatest part of the pulp dissolves both in water and rectified spirit; and may be extracted from the cane by either. The shops employ water, boiling the bruised pod therein, and afterwards evaporating the solution to a due consistence. The pulp is a gentle laxative medicine, and frequently given in a dose of some drams in costive habits. Geoffroy says, it does service in the tension of the belly, which sometimes follows the imprudent use of antimonials: and that it may be advantageously acuated with the more acrid purgatives, or antimonial emetics, or employed to abate their force. 2. C. senna is a shrubby plant cultivated in Persia, Syria, and Arabia, for the leaves, which form a considerable article of commerce. They are of a lively yellowish green color, a faint not very agreeable smell, and a subacrid, bitterish, nauseous taste. They are brought from the above places, dried and picked from the stalks, to Alexandria in Egypt, and thence imported into Europe. Senna is a very useful cathartic, operating mildly, and yet effectually: and if judiciously dosed and managed, rarely occasioning the ill consequences which too frequently follow the exhibition of the stronger purges. The only inconveniences complained of in this drug are, its being apt to produce griping pains. The griping quality depends upon a resinous substance, which, like the other bodies of this class, is naturally disposed to adhere to the coats of the intestines. The smell of senna resides in its more volatile parts, and may be discharged by lightly boiling infusions of it made in water. The colleges both of London and Edinburgh have given several formulæ for the exhibition of this article, such as those of infusion, powder, tincture, and electuary. The dose of senna in substance, is from a scruple to a drachm: in infusion, from one to three or four drachms. It has been customary to reject the pedicles of the leaves of senna as of little or no use: Geoffroy however observes, that they are not much inferior in efficacy to the leaves themselves. The pods or seed-vessels are by the college of Brussels preferred to the leaves: they are less apt to gripe, but proportionably less purgative.

Cassia lignea. See Laurus

Cassia, poet's. See Osyris.

CASSIBELAN, or Cassibelaunus, king of the Trinobantes, the son of Heli, succeeded his brother king Lud, about A.A.C. 62. About five years after his accession, Julius Cæsar having landed his army on the British coast, Cassibelan was chosen commander in chief of the British forces; but these undisciplined and disunited troops, though they made a brave opposition, fell an easy conquest to the veteran Romans: A.A.C. 55. Cassibelan therefore made the best terms he could with Cæsar, and engaged to pay a tribute of about £3000 a year to the Romans, and to send hostages for the payment. Only two of the British states, however, fulfilled their part of this treaty: whereupon Cæsar returned next year with a fleet of 800 ships; and though Cassibelan opposed him with all the united force of South Britain, he was repeatedly defeated; his capital burnt, and Mandubratius, Cæsar's ally, established as king of the Trinobantes. Cassibelan died A.A.C. 48.

CASSIDA, in zoology, a genus of insects of the order of coleoptera. The feelers are like threads, but thicker on the outside; the elytra are marginated; and the head is hid under the thorax; from which last circumstance is derived the name of the genus. The larva of this species, by the help of the two prongs which are to be found at its hinder extremity, makes itself, with its own excrements, a kind of umbrella that shelters it from the sun and rain. This larva casts its slough several times. Thistle and verticillated plants are inhabited by these insects. There is one species, the chrysalis of which resembles an armorial escutcheon. It is that which produces our variegated cassida, and is a very singular one. Numbers of them are found on the side of ponds.

CASSIDARIUS, in Roman antiquity, an officer in the armories, who had the care of the helmets.

CASSIDONY. See Gnaphalium.

CASSINA, or Cashna, a kingdom of central Africa, first described by Mr. Lucas as situated to the west of Bornou, and south of the Niger. It appears to rank next to Bornou in importance among the kingdoms of the interior; but its geographical and political features are too little known for us to offer any detailed statement of them. Cassina is said to form the southern limit of Fezzan, from which it is separated by the mountains of Eyre, so that it includes Agades and the surrounding regions; it resembles Bornou in its general appearance and productions, government, &c. Its commerce with northern Africa is maintained by a caravan which sets out from Fezzan, by Assouda, Ganatt, and Agades,

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and arrives at the capital in about sixty days: a journey of five days is now said to bring it to the Niger. The exports consist of slaves, gold-dust, cotton, and red and yellow goat skins. The imports are woollen stuffs, hardware, carpets, knives, arms, mirrors, and toys. The currency is in small shells, called cowries, 5000 of which are worth about £1 sterling.

CASSINE, in botany, a genus of the trigynia order and pentandria class of plants; natural order twenty-third, dumosæ: cal. quinquepartite; the petals are five; and the fruit is a trispermous berry. There are four species, all of them natives of warm climates.

CASSINIAN Curve, or Cassinoid, in astronomy, is an elliptic curve proposed by John Dominic Cassini, as the orbit of a planet. In this curve the product of two lines drawn from its foci to any point in the curve shall be equal to a given quantity, viz. to the rectangle under the aphelion and perihelion distances of the planet. The celestial observations, however, by no means correspond with this curve; and indeed it in some cases has breaches in its continuation, which are perfectly incompatible with the motion of a planet; so that it can by no means be admitted into astronomy. See *Dr. O. Gregory's Astronomy*, p. 183.

CASSINI (John Dominic), an eminent astronomer, born at Piedmont in 1635. His early proficiency in astronomy procured him an invitation to the mathematical chair at Bologna when he was only fifteen years of age: and, a comet appearing in 1652, he first asserted the regularity of the orbits of those bodies. In the same year he solved a problem given up by Kepler and Bullialdus, which was to determine geometrically the apogee and eccentricity of a planet from its true and mean place. In 1653 he drew his famous meridian line at Bologna, which is described by lady Morgan in her account of a visit to that city in 1820, as occupying an extent of 206 French feet, and making, as the inscription indicates, the 600,000th part of the earth's circumference. The gnomon or hole by which the sun's rays enter, is eighty-three feet in height above the pavement. This instrument marks the distance from the zenith, the sun's passage through the signs of the zodiac, the hours of the night, and other astronomical facts. In 1663 he was appointed inspector general of the fortifications of Urbino, and superintendent of all the rivers in the ecclesiastical state: he still however prosecuted his astronomical studies, and discovered the revolution of Mars round his own axis. In 1666 he published his Theory of Jupiter's Satellites. Cassini was invited into France by Louis XIV. in 1669, where he settled as first professor in the royal observatory. In 1677 he demonstrated the line of Jupiter's diurnal rotation; and in 1684 discovered four more satellites belonging to Saturn, Huygens having observed one before. In 1695 he went to Italy to inspect the meridian line, which he had settled in 1653, and in 1700 he continued the meridian line of France, which had been begun by Picard. He inhabited the royal observatory at Paris more than forty years; and died in 1712, having lost his sight some years before.

Cassini (James), the son of the preceding, was born at Paris, in 1677. He was educated at the Mazarine College under Varignon, professor of mathematics; and when only seventeen years of age admitted a member of the Academy. In 1696 he visited England, and was there chosen a fellow of the Royal Society. In 1712 he succeeded his father in the royal observatory at Paris, and increased the stock of science by numerous discoveries. But having, in 1720, published a book on the figure of the earth, maintaining, in opposition to Newton, that it was an oblong spheroid, the French king sent two companies of mathematicians, one towards the polar circle, and the other to the equator, to measure a degree; a decided refutation of Cassini's opinion was the result. In 1723 he described a perpendicular to the meridian of France, from Paris to St. Malo, and in 1724 from Paris to Strasburgh. In 1740 he published Elements of Astronomy, with Astronomical Tables. He died in 1756.

Cassini De Thury (Cæsar François), son of the above, was born at Paris, in 1714. When ten years of age he calculated the phases of the solar eclipse of 1727. He succeeded his father, and employed himself for many years in perfecting a general chart of France, and in continuing the perpendicular of the meridian of Paris. He wrote a great number of papers, published in the Memoirs of the Academy of Sciences. He died in 1784.

CASSI'NO, *n.* A game at cards, in which four are dealt to each player, four being also placed on the board. His object is to take as many cards as possible, by making combinations. Thus, a ten in his hand will take a ten from the board, or any number of cards which can be made to combine into tens. The greatest number of cards reckons three points; and of spades, one; the ten of diamonds, two; the two of spades one; and each of the aces, one.

CASSIODORUS (Marcus Aurelius), secretary of state to Theodoric king of the Goths, was born at Squillace, in Naples, about A. D. 481 He was also appointed governor of Sicily by the same prince; and in 514 was raised to the dignity of consul, in which Athalaric continued him, but Vitiges deprived him of all his offices. Perceiving the fall of the Gothic kingdom, and tired of the troubles of a public station, he resolved to retire from the world, and accordingly went to his native place, Squillace, where, having built a hermitage and a monastery, he devoted himself to his studies and religion. Here also he amused himself in making sun-dials, clepsydræ, and perpetual lamps. He died about 577. He wrote a Chronology from the beginning of the world to the year 519; a History of the Goths, of which an abridgment only remains; Letters, written while secretary, yet extant and valuable; a Treatise on Orthography; and Commentaries on several Passages of Scripture; of the latter those most esteemed are his Divine Institutions, and his Treatise on the Soul. The best edition of his works is that of Father Garret, printed at Rouen in 1679.

CASSIOPEIA, in astronomy, one of the constellations of the northern hemisphere, situated next to Cepheus. In 1572 there appeared a new star in this constellation, which at first surpassed in magnitude and brightness Jupiter himself; but it diminished by degrees, and at last disappeared, at the end of eighteen months. It astonished all the astronomers of that age, many of whom wrote dissertations on it; among the rest Tycho Brahe, Kepler, Maurolycus, Lycetus, Gramineus. This constellation contains fifty-two stars of the first six magnitudes.

CASSIOPEIA, in fabulous history, wife to Cepheus, king of Ethiopia, and mother of Andromeda. She boasted that she was more beautiful than the Nereides, who desired Neptune to revenge the affront, on which he sent a sea-monster into the country, which did much harm. To appease the god, her daughter Andromeda was exposed to the monster, but was rescued by Perseus, who obtained of Jupiter that Cassiopeia might be placed after her death among the stars: hence the constellation of that name.

CASSIOWARY. See STRUTHIO.

CASSIS, in antiquity, a plated or metalline helmet; different from the galea, which was of leather.

CASSITERIA, from *κασσιτερος*, tin, in the natural history of fossils, a genus of crystals, the figures of which are influenced by an admixture of some particles of tin. The cassiteria are of two kinds; the whitish pellucid cassiterion, and the brown. The first is a tolerably bright and pellucid crystal, and seldom subject to the common blemishes of crystal: it is of a perfect and regular form, in the figure of a quadrilateral pyramid. The brown cassiterion is like the former in figure; it is of a very smooth and glossy surface. They are found chiefly in Devonshire and Cornwall.

CASSITERIDES, in ancient geography, a cluster of islands west of the Land's End, opposite to Celtiberia, and famous for their tin. They were formerly open to none but Phœnicians, who carried on this commerce from Gades, concealing the navigation from the rest of the world. They are supposed to be the present Scilly Islands.

CASSIUS (Longinus Caius), one of the conspirators against Cæsar. He was married to Junia, the sister of Marcus Brutus. After his defeat at Philippi, he ordered one of his freed men to put him to death with his own sword, A. A. C. 41. See ROME.

CAS'SOCK, *n.* Fr. *casaque;* Ital. *casacca;* Sp. *casaca;* Gr. *kausak;* Dutch, *kazack;* Dan. *kasjack;* Swed. *kasjacka;* Arm. *keseg;* Welsh, *casog.* This word was formerly applied to a part of the upper dress of a soldier, as is shown by the quotation from Shakspeare; but it is now confined to a garment worn by clergymen.

And now the fox had gotten him a goune,
And the ape a *cassocke*, sidelong hanging doune;
For they their occupation meant to change,
And now in other state abroad to range.
Spenser. Mother Hubbard's Tale.

Half dare not shake the snow from off their *cassocks*,
They shake themselves to pieces. *Shakspeare.*

His scanty salary compelled him to run deep in debt for a new gown and *cassock*, and now and then forced him to write some paper of wit or humour, or preach a sermon for ten shillings, to supply his necessities. *Swift.*

CASSONADE, in commerce, cask sugar, or sugar put into casks after the first purification, but which has not been refined. It is sold either in powder or in lumps; the whitest, and that of which the lumps are largest, is the best. Many imagine it sweetens more than loaf-sugar, but it is certain that it yields a great deal more scum.

CASSOWARY. See STRUTHIO.

CASSWEED, in botany. See THLASPI.

CASSYTA, in botany, a genus of the monogynia order, and enneandria class of plants: CAL. none; COR. in the form of a calyx, divided into six segments; the nectarium is composed of three truncated glands encompassing the germen; the interior filaments are glandular; and the drupe contains a single seed. There are but two species, both Indian species.

CAST, *v.* & *n.* CAST'-AWAY, *n.* & *adj.* CAS'TER, *n.* CAS'TING, *n.* CAS'TING-NET, *n.* CAS'TLING, *n.*	Goth. *kasta;* Dan. *kast;* Swed. *kasta.* This, as Johnson justly observes, is a word of multifarious and indefinite use; as,

independently of the significations which it has when it stands by itself, it acquires numerous others from being united with prepositions. In order, therefore, to show the full power of it, we shall adopt his arrangement, with the addition of some authorities, and shades of meaning.

CAST, *v. a.* To throw with the hand.

I rather chuse to endure the wounds of those darts, which envy *casteth* at novelty, than to go on safely and sleepily in the easy ways of ancient mistakings. *Raleigh.*

Then *cast* thy sword away,
And yield thee to my mercy, or I strike
Dryden and Lee.

Cast on the bank he dies with gasping pains,
And trickling blood his silver mail distains. *Gay.*

To throw away, as useless or noxious.

If thy right hand offend thee, cut it off, and *cast* it from thee. *Matthew.*

To throw as from an engine.

Slings to *cast* stones. *Chronicles.*

To scatter by the hand: as, to *cast* seed.

Cast the dust into the brook. *Deuteronomy.*

Nor that she pays while she survives
To her dead love this tribute due,
But *casts* abroad those donatives
At the installing of a new. *Marvell.*

To force by violence.

Cast them into the Red Sea. *Exodus.*

To shed.

Nor shall your vine *cast* her fruit. *Malachy.*

To throw from a high place.

Bear him to the rock Tarpeian, and from thence
Into destruction *cast* him. *Shakspeare. Coriolanus.*

To throw as a net or snare.

I speak for your own profit, not that I may *cast* a snare upon you. 1 *Cor.* vii. 35.

To drop; to let fall.

They let down the boat into the sea, as though they would have *cast* anchor. *Acts,* xxvii. 30.

For Santa Cruz the glad fleet takes her way,
And safely there *casts* anchor in the bay. *Marvell.*

To throw dice or lots.

And Joshua *cast* lots for them in Shiloh. *Joshua*, xviii. 10.

To throw in wrestling.

And I think, being too strong for him, though he took my legs sometime, yet I made a shift to *cast* him. *Shakspeare.*

To throw, as worthless or hateful.

His carcase was *cast* in the way. *Chronicles.*

To drive by violence of weather.

Howbeit we must be *cast* upon a certain island. *Acts.*

What length of lands, what ocean have you passed,
What storms sustained, and on what shore been *cast?* *Dryden.*

To emit.

This fumes off in the calcination of the stone, and *casts* a sulphureous smell. *Woodward.*

To bring suddenly or unexpectedly.

Content themselves with that which was the irremediable error of former time, or the necessity of the present hath *cast* upon them. *Hooker.*

To build by throwing up earth; to raise.

And shooting in the earth *casts* up a mount of clay. *Spenser's Faerie Queene.*

Earth-worms will come forth, and moles will *cast* up more, and fleas bite more, against rain. *Bacon's Nat. Hist.*

To put into or out of any certain state, with the notion of descent or depression: as, the king was *cast* from his throne.

Jesus had heard that John was *cast* into prison. *Matthew.*

To condemn in a criminal trial.

But oh, that treacherous breast! to whom weak you
Did trust our counsels, and we both may rue,
Having his falsehood found too late, 'twas he
That made me *cast* you guilty, and you me. *Donne.*

There then we met; both tried and both were *cast*;
And this irrevocable sentence past. *Dryden.*

To overcome or defeat in a law suit; from Fr. *caster.*

The northern men were agreed, and in effect all the other, to *cast* our London escheatour. *Camden's Remains.*

To defeat.

No martial project to surprise,
Can ever be attempted twice;
Nor *cast* design serve afterwards,
As gamesters tear their losing cards. *Hudibras.*

To cashier.

You are but now *cast* in his mood, a punishment more in policy than in malice; even so as one would beat his offenceless dog, to affright an imperious lion. *Shakspeare.*

To leave behind in a race.

In short, so swift your judgments turn and wind,
You *cast* your fleetest wits a mile behind. *Dryden.*

To shed, to let fall; to lay aside; to moult; to change for new.

The *casting* of the skin is, by the ancients, compared to the breaking of the secundine, or cawl, but not rightly; for that were to make every *casting* of the skin a new birth: and besides, the secundine is but a general cover, not shaped according to the parts, but the skin is shaped according to the parts. The creatures that *cast* the skin, are the snake, the viper, the grasshopper, the lizard, the silkworm, &c. *Bacon.*

The waving harvest bends beneath his blast,
The forest shakes, the groves their honours *cast.* *Dryden.*

The ladies have been in a kind of moulting season, having *cast* great quantities of ribbon and cambrick and reduced the human figure to the beautiful globular form. *Addison.*

To lay aside, as fit to be used or worn no longer.

So may *cast* poets write; there's no pretension
To argue loss of wit, from loss of pension. *Dryden.*

He has ever been of opinion, that giving *cast* clothes to be worn by valets, has a very ill effect upon little minds. *Addison.*

To have abortions; to bring forth before the time.

Thy ewes and thy she-goats have not *cast* their young. *Genesis.*

To make to preponderate; to decide by overbalancing; to give over-weight.

Which being inclined, not constrained, contain within themselves the *casting* act, and a power to command the conclusion. *Browne's Vulgar Errours.*

How much interest *casts* the balance in cases dubious. *South.*

Not many years ago, it so happened, that a cobler had the *casting* vote for the life of a criminal, which he very graciously gave on the merciful side. *Addison on Italy.*

To compute; to reckon; to calculate.

Hearts, tongues, figures, scribes, bards, poets, cannot
Think, speak, *cast*, write, sing, number, ho!
His love to Antony. *Shakspeare.*

You *cast* the event of war, my noble lord,
And summed the account of chance, before you said,
Let us make head. *Id.*

I have lately been *casting* in my thoughts the several unhappinesses of life, and comparing the infelicities of old age to those of infancy. *Addison.*

To contrive; to plan out.

The cloister facing the south is covered with vines, and would have been proper for an orange-house; and had, I doubt not, been *cast* for that purpose, if this piece of gardening had been then in as much vogue as it is now. *Temple.*

To judge; to consider in order to judgment.

If thou couldst, doctor, *cast*
The water of my land, find her disease,
And purge it to a sound and pristine health,
I would applaud thee. *Shakspeare.*

Peace, brother, be not over exquisite
To *cast* the fashion of uncertain evils. *Milton.*

To fix the parts in a play.

Our parts in the other world will be new *cast*, and mankind will be there ranged in different stations of superiority. *Addison.*

To glance; to direct: applied to the eye or mind.

Beryn rode forth in his wey, his page ran him by,
Full sore adred in hert, and *cast* about his eye
Up and down, even long the strete, and for his anger
swete. *Chaucer. Cant. Tales.*

A losel wandering by the way,
One that to bounty never *cast* his mind
Ne thought of heaven ever did assay
His baser breast. *Spenser.*

Zelmane's languishing countenance, with crossed arms, and sometimes *cast* up eyes, she thought to have an excellent grace. *Sidney.*

Begin, auspicious boy, to *cast* about
Thy infant eyes, and, with a smile, thy mother single
out. *Dryden's Virgil.*

Far eastward *cast* thine eye, from whence the sun,
And orient science, at a birth begun. *Pope's Dunciad.*

Quick to the neighbouring tree he flies,
There, trembling, *casts* around his eyes;
No foe appears, his fears were vain,
Pleased he renews the sprightly strain. *Beattie.*

You cannot behold a covetous spirit walk by a goldsmith's shop without *casting* a wishful eye at the heaps upon the counter. *Spectator.*

To found; to form by running in a mould; to melt metal into figures.

When any such curious work of silver is to be *cast*, as requires that the impression of hairs, or very slender lines, be taken off by the metal, it is not enough that the silver be barely melted, but it must be kept a considerable while in a strong fusion. *Boyle.*

The father's grief restrained his art;
He twice essay'd to *cast* his son in gold,
Twice from his hands he dropped the forming mould.
Dryden.

To model; to form by rule.

Under this influence, derived from mathematical studies, some have been tempted to *cast* all their logical, their metaphysical, and their theological and moral learning into this method. *Watts's Logic.*

To communicate by reflection or emanation.

So bright a splendour, so divine a grace,
The glorious Daphnis *casts* on his illustrious race.
Dryden.

To yield or give up, without reserve or condition.

The reason of mankind cannot suggest any solid ground of satisfaction, but in making God our friend, and in carrying a conscience so clear, as may encourage us, with confidence, to *cast* ourselves upon him. *South.*

To inflict, or throw.

The world is apt to *cast* great blame on those who have an indifferency for opinions, especially in religion. *Locke.*

To cast aside. To dismiss as useless or inconvenient.

I have bought
Golden opinions from all sort of people,
Which would be worn now in their newest gloss,
Not *cast* aside so soon, *Shakspeare.*

To cast away. To shipwreck.

Sir Francis Drake and John Thomas, meeting with a storm, it thrust John Thomas upon the islands to the south, where he was *cast* away. *Raleigh's Essays.*

'Twas in a shipwreck, when the seas
Ruled, and the winds did what they please,
That my poor lover floating lay,
And ere brought forth, was *cast away*. *Marvell.*

But now our fears tempestuous grow,
And *cast* our hopes *away*;
Whilst you, regardless of our woe,
Sit careless at a play. *Dorset.*

To cast away. To lavish; to waste in profusion; to turn to no use.

They that want means to nourish children, will abstain from marriage; or, which is all one, they *cast away* their bodies upon rich old women.
Raleigh's Essays.

O Marcia, O my sister! still there's hope,
Our father will not *cast away* a life
So needful to us all, and to his country.
Addison's Cato.

To cast away. To ruin.

It is no impossible thing for states, by an oversight in some one act or treaty between them and their potent opposites, utterly to *cast away* themselves for ever. *Hooker.*

To cast away. To dismiss; to drive away.

Hang sorrow! let's to yonder hut repair,
And with trim sonnets *cast away* our care. *Gay.*

To cast back. To render tardy; to put behind.

Your younger feet; while mine, *cast back* with age,
Come lagging after. *Milton.*

To cast by. To reject or dismiss, with neglect or hate.

Old Capulet and Montagu,
Have made Verona's ancient citizens
Cast by their grave beseeming ornaments.
Shakspeare.

When men, presuming themselves to be the only masters of right reason, *cast by* the votes and opinions of the rest of mankind, as not worthy of reckoning.
Locke.

To cast down. To deject; to depress the mind.

We're not the first,
Who, with best meaning, have incurred the worst:
For thee, oppressed king, I am *cast down*;
Myself could else outfrown false fortune's frown.
Shakspeare.

The best way will be to let him see you are much *cast down*, and afflicted, for the ill opinion he entertains of you. *Addison.*

To cast forth. To emit.

He shall grow as the lily, and *cast forth* his roots as Lebanon. *Hosea.*

To cast forth. To eject.

They *cast* me *forth* into the sea. *Jonah*

To cast off. To discard; to put away.

The prince will, in the perfectness of time,
Cast off his followers. *Shakspeare.*

He led me on to mightiest deeds,
But now hath *cast* me *off*, as never known.
Milton.

How! not call him father? I see preferment alters a man strangely; this may serve me for an use of instruction, to *cast off* my father, when I am great.
Dryden.

To cast off. To reject.

It is not to be imagined, that a whole society of men should publicly and professedly disown and *cast off* a rule, which they could not but be infallibly certain was a law. *Locke.*

To cast off. To disburden one's self of.

All conspired in one to *cast off* their subjection to the crown of England. *Spenser's State of Ireland.*

The true reason why any man is an atheist, is because he is a wicked man: religion would curb him in his lusts; and therefore he *casts* it *off*, and puts all the scorn upon it he can. *Tillotson.*

To cast off. To leave behind.

Away he scours cross the fields, *casts off* the dogs, and gains a wood: but pressing through a thicket, the bushes held him by the horns, till the hounds came in, and plucked him down. *L'Estrange.*

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To cast off. A hunting term. To let go or set free: as, to cast off the dogs.

To cast out. To reject; to turn out of doors.

Thy brat hath been *cast out*, like to itself, no father owning it. *Shakspeare.*

To cast out. To vent; to speak: with some intimation of negligence or vehemence.

Why dost thou *cast out* such ungenerous terms
Against the lords and sovereigns of the world?
Addison.

To cast up. To compute; to calculate.

Some writers, in *casting up* the goods most desirable in life, have given them this, rank, health, beauty, and riches. *Temple.*

To cast up. To vomit.

Thou, beastly feeder, art so full of him,
That thou provokest thyself to *cast* him *up*. *Shak.*
Thy foolish errour find;
Cast up the poison that infects thy mind. *Dryden.*

To cast up. To throw or lift up.

Cast up the curtein, loke how that it is.
Chaucer's Cant. Tales.

To cast upon. To refer to; to resign to.

If things were *cast upon* this issue, that God should never prevent sin till man deserved it, the best would sin and sin for ever. *South.*

To Cast. *v. n.*

To contrive; to turn the thoughts.

Then, closely as he might, he *cast* to leave
The court, not asking any pass or leave. *Spenser.*
But first he *casts* to change his proper shape,
Which else might work him danger or delay:
And now a stripling cherub he appears. *Milton.*

To admit of a form, by casting or melting.

It comes at the first fusion into a mass that is immediately malleable, and will not run thin, so as to *cast* and mould, unless mixed with poorer ore, or cinders. *Woodward on Fossils.*

To be formed as if in a mould.

These features *cast* in heavenly mould
Shall like my coarser earth grow old;
Like common grass, the fairest flower
Must feel the hoary season's power. *Gay.*

To warp; to grow out of form.

Stuff is said to *cast* or warp, when, by its own drought, or moisture of the air, or other accident, it alters its flatness or straightness.
Moxon's Mechanical Exercises.

To vomit.

I cannot abide them, they make me ready to *cast*.
B. Jonson.

To cast about. To contrive; to look for means.

We have three that bend themselves, looking into the experiments of their fellows, and *cast about* how to draw out of them things of use and practice for man's life and knowledge. *Bacon's New Atalantis.*

As a fox, with hot pursuit
Chased thro' a warren, *cast about*
To save his credit. *Hudibras.*

All events called casual, among inanimate bodies, are mechanically produced according to the determinate figures, textures, and motions of those bodies, which are not conscious of their own operations, nor contrive and *cast about* how to bring such events to pass. *Bentley.*

To cast about; to retrace the steps.

The people that Ishmael had carried away captive from Mispeth *cast about* and returned, and went to Johanan. *Jeremiah* xli. 14.

Cast, *n.*

The act of casting or throwing; a throw.

So when a sort of lusty shepherds throw
The bar by turns, and none the rest outgo
So far, but that the rest are measuring *casts*,
Their emulation and their pastime lasts. *Waller.*

The thing thrown.

Yet all these dreadful deeds, this deadly fray,
A *cast* of dreadful dust will soon allay,
Dryden's Virgil.

State of anything cast or thrown.

Plato compares life to a game at tables; there what *cast* we shall have is not in our power; but to manage it well, that is. *Norris.*

Manner of throwing.

Some harrow their ground over, and sow wheat or rye on it with a broad *cast*; some only with a single *cast*, and some with a double. *Mortimer.*

The space through which anything is thrown.

And he was withdrawn from them about a stone's *cast*, and kneeled down and prayed. *Luke.*

And ere he had riden a stone's *cast*, a blynd man
with him met,
And spak no word, but sesed him fast by the lap,
And cried 'out and harowe,' and nere him gan to stap.
Chaucer's Cant. Tales.

A stroke; a touch.

We have them all with one voice for giving him a *cast* of their court prophecy. *South*

This was a *cast* of Wood's politics; for his information was wholly false and groundless. *Swift.*

Motion of the eye; direction of the eye.

Pity causeth sometimes tears, and a flexion or *cast* of the eye aside; for pity is but grief in another's behalf; the *cast* of the eye is a gesture of aversion, or lothness, to behold the object of pity.
Bacon's Nat. History.

There, held in holy passion still
Forget thyself to marble, till
With a sad leaden, downward *cast*,
Thou fix them on the earth as fast. *Milton.*

He that squints is said popularly to have a *cast* with his eye.

A man shall be sure to have a *cast* of their eye to warn him, before they give him a *cast* of their nature to betray him. *South.*

The throw of dice.

Were it good,
To set the exact wealth of all our states
All at one *cast*; to set so rich a main
On the nice hazard of some doubtful hour?
Shakspeare.

Venture from throwing dice; chance from the fall of dice.

When you have brought them to the very last *cast*, they will offer to come to you, and submit themselves
Spenser on Ireland.

With better grace an ancient chief may yield
The long contested honours of the field,
Than venture all his fortune at a *cast*,
And fight, like Hannibal, to lose at last. *Dryden.*

A mould; a form.

The whole would have been an heroic poem, but in another *cast* and figure than any that ever had been written before. *Prior.*

The act of casting metal.

Such daily *cast* of brazen cannon. *Shakspeare.*

A shade or tendency to any color.

The qualities of blood in a healthy state are to be florid, the red part congealing, and the serum ought be without any greenish *cast*. *Arbuthnot on Aliments.*

Exterior appearance.

The native hue of resolution
Is sicklied o'er with the pale *cast* of thought. *Shakspeare.*

Manner; air; mein.

Pretty conceptions, fine metaphors, glittering expressions, and something of a neat *cast* of verse, are properly the dress, gems, or loose ornaments of poetry. *Pope's Letters.*

A flight; a number of hawks dismissed from the fist.

A *cast* of merlins there was besides, which, flying off a gallant height, would beat the birds that rose down unto the bushes, as falcons will do wild fowl over a river. *Sidney.*

Cast; from the Welsh; a trick.

CA'STA. Span. a breed; a race; a species.

CASTAGNO (Andrew Del), historical painter, was born at Castagno, in 1409, and was originally employed in tending cattle; but, having accidentally seen an ordinary painter at work, he made such efforts to imitate him, as astonished all who saw his productions. The genius of Andrew became at last a common topic of discourse in Florence, and excited the curiosity of Bernardetto de Medici so far that he sent for him, and perceiving that he had promising talents, placed him under the care of the best masters then in Florence. He painted only in distemper and fresco, with a manner of coloring that was not very agreeable, till he learned the art of painting in oil from Dominic Venetiano, who had derived his knowledge of that discovery from Antonello da Messina. Being less admired than Venetiano, he formed the horrid resolution of assassinating his friend and benefactor, and stabbed him at the corner of a street so secretly, that he escaped unobserved and unsuspected to his own house. Thither Dominic was soon after conveyed, to die in the arms of his murderer. No discovery of this inhuman transaction was made till Andrew, through remorse of conscience, confessed it on his death-bed, in 1480. He finished several considerable works at Florence, by which he gained great reputation. His most noted picture was lately in the hall of justice at Florence, representing the execution of the conspirators against the house of Medici.

CASTALIO (Sebastian), was born in the province of Dauphiny in 1515. Calvin, during his stay at Strasburgh in 1540 and 1541, procured him a regent's place in the college of Geneva; but after continuing in this office nearly three years, Castalio was forced to quit it in 1544, on account of his opinions. See Calvin. He retired to Basil, where he was made Greek professor, and died in 1564, aged forty-eight. His works are very considerable. In 1545 he printed, in elegant Latin, at Basil, Dialogorum Sacrorum, Libri IV., a work containing the principal histories of the Bible thrown into the form of dialogues. But his principal work is a Latin and French translation of the Scriptures. He began the Latin translation at Geneva in 1542, and finished it at Basil in 1550. It was printed at Basil, in 1551, and dedicated to Edward VI. king of England. The French version was dedicated to Henry II. of France, and printed at Basil, in 1555.

CASTALIUS Fons, Castalia, a fountain at the foot of mount Parnassus, in Phocis, near the temple of Apollo, or near Delphi; sacred to the Muses. Its murmurs were thought prophetic.

CAS'TANET, *n.* Fr. *castagnettes;* Span. *castanéta.* Castanéta is a diminutive of castana, a chestnut; and the name is supposed to be given to the instrument either from its being made of chestnut wood, or from its resemblance to the shell of a chestnut. Two small pieces of hollow ivory, or hard wood, which dancers rattle in their hands, in cadence to their motions.

If there had been words enow between them, to have expressed provocation, they had gone together by the ears like a pair of *castanets.* *Congreve.*

Castanets, Castanettas, or Castagnettes, are a kind of musical instrument, with which the Moors, Spaniards, and Bohemians accompany their dances, sarabands, and guitars. It consists of two little round pieces of wood dried, and hollowed in the manner of a spoon, the concavities whereof are placed one on another, fastened to the thumb, and beat from time to time with the middle finger, to direct their motion and cadences. The castanets may be beat eight or nine times in a second.

CAST'AWAY, *n.* & *adj.* A person abandoned by Providence; anything thrown away; useless; valueless.

Lest that by any means, when I have preached to others, I myself should be a *castaway.* 1 *Cor.* ix. 27.

Neither given any leave to search in particular who are the heirs of the kingdom of God, who *castaways.* *Hooker.*

We only prise, pamper, and exalt this vassal and slave of death; or only remember, at our *castaway* leisure, the imprisoned immortal soul. *Raleigh.*

CASTE, in the eastern affairs, is used in a sense somewhat similar to Dr. Johnson's definition for a tribe, or number of families, of the same rank and profession. The division of a nation into castes chiefly obtains in the dominions formerly belonging to the Great Mogul, Bengal, the island ot Ceylon, and the great peninsula opposite. See Brahmin and Hindostan.

CAST'ED. The participle preterite of cast, but improperly, and found perhaps only in the following passage.

When the mind is quickened, out of doubt,
The organs, though defunct and dead before,
Break up their drowsy grave, and newly move
With *casted* slough and fresh legerity. *Shakspeare.*

CASTEL (Lewis Bertrand), a learned Jesuit, born at Montpelier in 1688. He distinguished himself by writing on gravity, mathematics, and the music of colors, a whimsical idea, which he took great pains to reduce to practice. His piece on gravity, entitled Traité de la Pensateur Universelle, was printed at Paris in 1724. He afterwards published his Mathematique Universelle, which occasioned his being unanimously chosen F.R.S. of London. He was also a member of the academies of Bourdeaux and Rouen: but his Clavecin Oculaire excited most

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attention; and he spent much time and expense in making an harpsichord for the eye, but without success. He also wrote for and against Sir Isaac Newton, and published several other works; the principal of which are, Le Plan d'une Mathematique Abregée, and a treatise entitled Optique des Couleurs. He led a very exemplary life, and died in 1757.

CASTELL (Edmund), D. D., a learned English divine of the seventeenth century, distinguished by his skill in the eastern languages. He was educated at Cambridge; where he was master of Catharine hall, Arabic professor, and canon of Canterbury. He was also chaplain to Charles II. He had a great share in the labor of printing the Polyglott Bible of London; and wrote the Heptaglotton pro Septem Orientalibus, &c. On this excellent work, which occupied a great part of his life, he bestowed incredible pains and expense, even to the breaking of his constitution, and exhausting of his fortune. It is said he expended no less than £12,000 upon it.. At length, when it was printed, the copies remained unsold upon his hands. He died in 1685, and bequeathed all his oriental MSS. to the university of Cambridge, on condition that his name should be written on every copy in the collection.

CASTELLA, a town of Italy, about five miles north-east of Mantua, where an obstinate battle was fought between the French and Austrians, on the 12th of September, 1796, when the former were defeated.

CASTELLATIO, or CASTELLATION, in middle age writers, the act of building a castle, or of fortifying a house, and making it a castle. By the ancient English laws, castellation was prohibited, without the king's especial license.

CASTELLI (Bernard), an eminent painter, born at Genoa in 1557. He excelled in coloring and in portraits. He was the intimate friend of Tasso, and designed and etched the figures of his Hierosolyma Liberata. He died at Genoa in 1629.

CASTELLO, CITTA DI (the Tifernum Tiberinum of the ancients), a bishop's see in the province of Umbria, and States of the Church, on the Tiber, the capital of a county of the same name. It is well fortified, has a castle, and contains ten churches.

CASTELLO ROSSO, or KASTELORIZO, a small island of the Mediterranean, divided from the coast of Caramania by a channel, about half a mile wide. It is rocky and high, the summit rising about 800 feet above the ocean. There is a town of this name on it, with a good small harbour. It is principally inhabited by Greeks, under the government of a Turkish aga, dependent on the bey of Rhodes. Long. 29° 37′ E., lat. 39° 8′ N.

CASTELLON DE LA PLANA, a large town in a very fertile part of Valencia, Spain, about half a league from the coast of the Mediterranean. The Moorish walls and towers are in tolerable repair. It has eight gates and two suburbs. The streets are generally broad, and the houses well-built. A spacious square contains the town-house and principal church. The only objects of interest are the church buildings, the town-house, and a vast tower or belfry, 260 feet in height, and 161 in circumference. Population 11,000. Twenty-eight miles south of Valencia.

CASTELNAUDARY, or CHATEL-NAUDARY, a silk manufacturing town of Upper Languedoc, France, in the department of the Aude. It stands on an eminence near the canal of Languedoc. The country around is fertile in corn. Here is a collegiate chapter, and in the vicinity the grand reservoir which supplies the canal with water. A battle was fought here in 1632, between the duke of Montmorency and marshal Schomberg, in which the former was defeated and made prisoner. Thirty-three miles south-east of Toulouse, and 460 south of Paris.

CASTELLUM, Lat. i. e. a little castle, originally seems to have signified a small fort for a little garrison: though Suetonius uses the word where the fortification was large enough to contain a cohort. The castella, according to Vegetius, were often like towns, built on the borders of the empire, and where there were constant guards, and fences against the enemy. Horsley takes them for much the same with stations.

CAST'ER, *v.* & *n.* A thrower; he who casts; an accomptant; a man who calculates nativities. The noun signifies a small wheel, fixed to a swivel such as tables move on.

If with this throw the strongest *caster* vie,
Still, further still, I bid the discus fly. *Pope.*

Did any of them set up for a *caster* of fortunate figures, what might he not get by his predictions? *Addison.*

CASTIFICA'TION. Lat. *castus* and *facio* Chastity. The word is used in his sense by Bishop Taylor, but I know of no other authority for it.

CA'STIGATE, *v.*
CASTIGA'TION, *n.*
CA'STIGATOR, *n.*
CA'STIGATORY, *adj.*

Ital. *castigare;* Span. *castigar;* Lat. *castigo.* To castigate, is to inflict chastisement, or punishment; to correct; to render pure; castigation is the punishment, correction, penance, or discipline, which is suffered; the emendations, or purifications which are made; the castigator is the agent in these operations; and castigatory signifies punitive, for the purpose of amending.

If thou didst put this sour cold habit on
To *castigate* thy pride, 'twere well. *Shakspeare.*
This band of your's requires
A sequester from liberty, fasting and prayer,
With *castigation*, exercise devout. *Id.*

The ancients had these conjectures touching these floods and conflagrations, so as to frame them into an hypothesis for the *castigation* of the excesses of generation. *Hale.*

There were other ends of penalties inflicted, either probatory, *castigatory*, or exemplary. *Bramhall against Hobbes.*

Their *castigations* were accompanied with encouragements; which care was taken to keep me from looking on as mere compliments. *Boyle.*

He had adjusted and *castigated* the then Latin Vulgate to the best Greek exemplars. *Bentley.*

CASTIGATION, among the Romans, the punishment of an offender by blows, or beating with a wand or switch. Castigation was chiefly a military punishment; the power of inflicting it on the soldiery was given to the tribures. Some make it of two kinds; the one with a stick or cane, called fustigatio; the other with rods, called flagellatio: the latter was the most dishonorable.

CASTIGLIONE Delle Stiviere, or **Della Stivera**, a town of Lombardy, in the territory of Mantua, formerly the capital of a principality of this name. It is surrounded with walls, but the castle was long since demolished by the French. The allies took it in 1701, but were defeated near it by the French in 1706. Several actions took place here between the French and Austrians in August, 1796; and Buonaparte conferred a dukedom of this name on Augereau. It is fifteen miles south-east of Brescia, and twenty north-west of Mantua.

Castiglione (John Benedict), a celebrated painter, born at Genoa in 1616. His first master was John Baptist Paggi. He afterwards studied under Andrew Ferrari; and perfected himself under Vandyck, who then resided at Genoa. He painted portraits, historical pieces, landscapes, and castles. In the latter of which he is said chiefly to have excelled; as well as in fairs, markets, and all kinds of rural scenes. We have also a great number of his etchings, which are all spirited, free, and full of taste. His drawing of the naked figure, though by no means correct, is in a style that indicates the hand of a master.

Castiglione (Balthazer), an eminent Italian nobleman, descended from an illustrious family, and born at his own villa at Casalico, in the duchy of Milan, in 1478. He studied painting, sculpture, and architecture, and he so much excelled in these arts, that Raphael Urbino and Buonarotti submitted their works for his approbation. When he was twenty-six years of age Guido Ubaldo, duke of Urbino, sent him ambassador to pope Julius II. He was sent upon a second embassy to Louis XII. of France, and upon a third to Henry VII. of England. Castiglione died in 1529, when acting as legate at Toledo for Clement VII. with Charles V. of Spain. His principal work is entitled Il Cortegiano; the Courtier. A version of it, together with the original Italian, was published at London in 1727, by A. P. Castiglione, a gentleman of the same family.

CASTILE, New, also called the kingdom of Toledo, a province of Spain, bounded on the north by Old Castile, on the east by the kingdoms of Arragon and Valencia, on the south by those of Murcia and Andalusia, and on the west by the kingdom of Leon. It is divided into three parts, Argaria, Mancha, and Sierra; Madrid being the capital. The air is pure and healthy; but the land mountainous, sterile, and neglected, though watered with most beautiful streams. The northern part produces fruits and wine, and the south excellent pasturage. It is watered by the navigable rivers, the Tagus, the Xucar, and the Guadiana, besides smaller streams; and contains the provinces of Toledo, Cuença, Guadalaxara, Madrid, St. Ildefonso, Aranjuez, and St. Lorenzo. The principal towns are, beside the capital, Toledo, Cuença, Requena, and Talavera. It contains one archbishopric, one bishopric, three universities, two cathedrals, and five collegiate chapters, two abbeys, four military commanderies, 116 hospitals, 375 religious houses, and 1301 parishes. Its administration includes one general, and four local military governments, together with four provincial intendancies. Its population, which has not been officially ascertained for many years, is taken at about one million.

An extensive chain of high and rocky mountains, which runs from east to west, divides New from **Old Castile**, a province, with the title of a kingdom. It is about 192 miles in length, and 115 in breadth; bounded on the south by New Castile, on the east by Arragon and Navarre, on the north by Biscay and Asturias, and on the west by the kingdom of Leon. The capital is Burgos. Other principal towns are Valladolid, Segovia, Avila, Calatrava, Logrono, and Soria: its ecclesiastical establishments are, one archbishopric, seven bishoprics, thirty-four chapters, and 394 religious houses. The military government is in a captain general; there are also six provincial intendants, and a royal chancery. Population about 1,200,000.

In the mountains are copper mines, which however have been little attended to, pyrites, quartz, marble, and chalk; also several mineral springs. The chief rivers are the Xalon, Douro, Ebro, Carrion, and Tormes. Part of the soil is very fertile in rye, wheat, and barley: and some districts produce an inferior wine; but the whole province is remarkably destitute of wood. Madder is cultivated with success, and 400 or 500 tons are said to be exported annually. The pasturage is generally fine, and is the foundation of the entire wealth of the province. Segovian wool is nowhere exceeded, if equalled, in quality; the numerous flocks of merino sheep find a salutary exchange of food between the warm plains during winter, and the sides of the mountains in summer; and the butter of Burgos and its neighbourhood is celebrated throughout Spain. The manufactures are confined to a few woollen and linen establishments, those of earthenware, leather, paper, and glass; but wool is the only considerable export. With its three universities, Castile partakes of the universal degradation of Spain, with regard to intellectual culture: literature and the arts are nowhere in Europe at a lower ebb. The inhabitants are remarkably quiet, reserved, proud, and lethargic, in their manners; but honest, simple, and kind. Old Castile has given birth to several of the kings of Spain; those of Castile formerly divided their residence between Burgos and Toledo; but Charles V. transferred the seat of government to Madrid.

CASTILLAN, or **Castillane**, a gold coin current in Spain, worth fourteen rials and sixteen deniers.

CASTILLON, a town of France, in the department of the Gironde, and ci-devant province of Guienne, seated on the Dordogne, twenty-five miles east of Bourdeaux. It is memorable for a victory obtained by the French over the English in 1451.

CASTING, among sculptors, the taking off casts and impressions of figures, busts, medals, leaves, &c. The method of taking off casts of figures and busts is most generally by the use of

CASTING. 227

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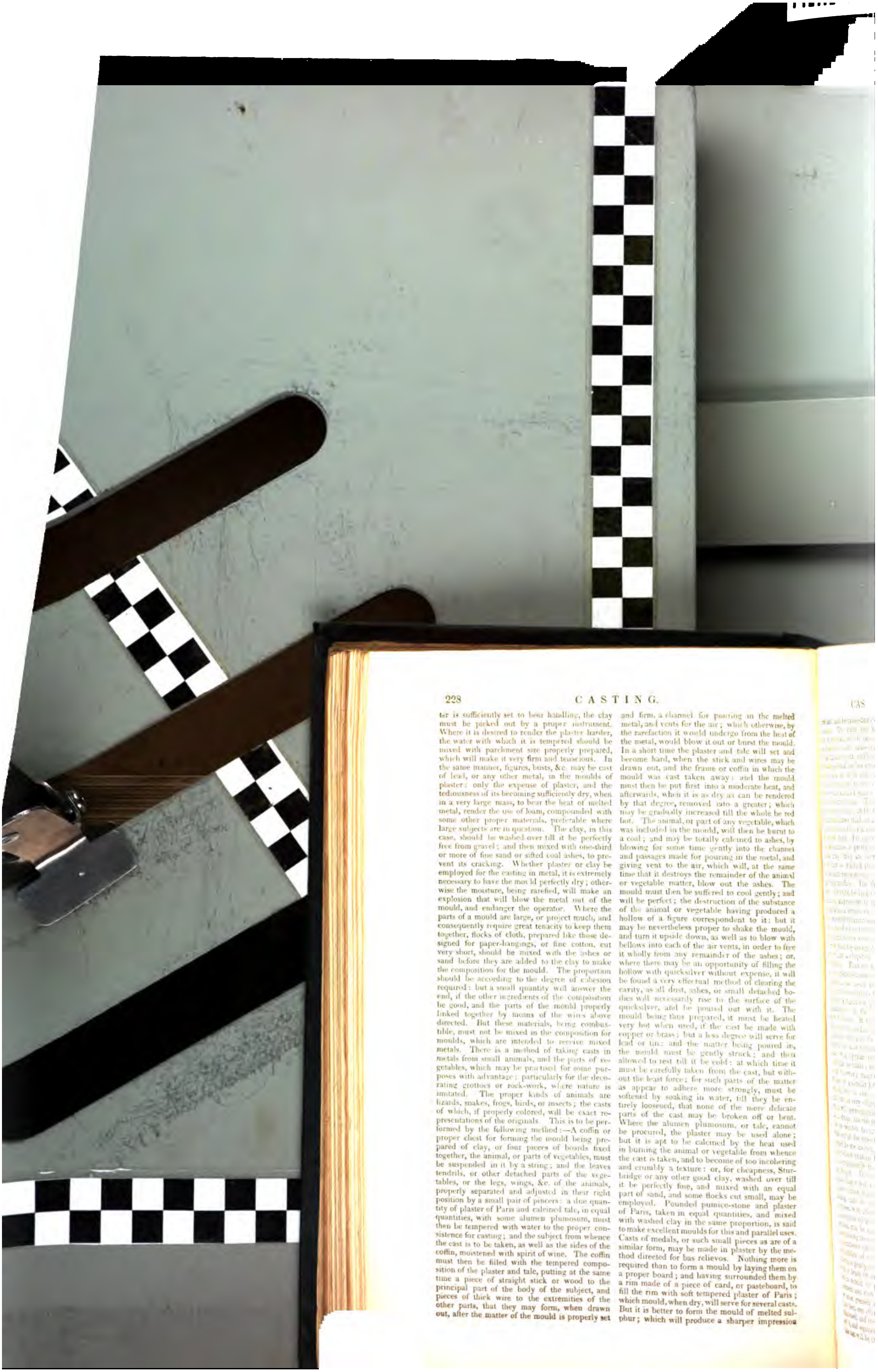


ter is sufficiently set to bear handling, the clay must be picked out by a proper instrument. Where it is desired to render the plaster harder, the water with which it is tempered should be mixed with parchment size properly prepared, which will make it very firm and tenacious. In the same manner, figures, busts, &c. may be cast of lead, or any other metal, in the moulds of plaster: only the expense of plaster, and the tediousness of its becoming sufficiently dry, when in a very large mass, to bear the heat of melted metal, render the use of loam, compounded with some other proper materials, preferable where large subjects are in question. The clay, in this case, should be washed over till it be perfectly free from gravel; and then mixed with one-third or more of fine sand or sifted coal ashes, to prevent its cracking. Whether plaster or clay be employed for the casting in metal, it is extremely necessary to have the mould perfectly dry; otherwise the moisture, being rarefied, will make an explosion that will blow the metal out of the mould, and endanger the operator. Where the parts of a mould are large, or project much, and consequently require great tenacity to keep them together, flocks of cloth, prepared like those designed for paper-hangings, or fine cotton, cut very short, should be mixed with the ashes or sand before they are added to the clay to make the composition for the mould. The proportion should be according to the degree of cohesion required: but a small quantity will answer the end, if the other ingredients of the composition be good, and the parts of the mould properly linked together by means of the wires above directed. But these materials, being combustible, must not be mixed in the composition for moulds, which are intended to receive mixed metals. There is a method of taking casts in metals from small animals, and the parts of vegetables, which may be practised for some purposes with advantage; particularly for the decorating grottoes or rock-work, where nature is imitated. The proper kinds of animals are lizards, snakes, frogs, birds, or insects; the casts of which, if properly colored, will be exact representations of the originals. This is to be performed by the following method:—A coffin or proper chest for forming the mould being prepared of clay, or four pieces of boards fixed together, the animal, or parts of vegetables, must be suspended in it by a string; and the leaves tendrils, or other detached parts of the vegetables, or the legs, wings, &c. of the animals, properly separated and adjusted in their right position by a small pair of pincers: a due quantity of plaster of Paris and calcined talc, in equal quantities, with some alumen plumosum, must then be tempered with water to the proper consistence for casting; and the subject from whence the cast is to be taken, as well as the sides of the coffin, moistened with spirit of wine. The coffin must then be filled with the tempered composition of the plaster and talc, putting at the same time a piece of straight stick or wood to the principal part of the body of the subject, and pieces of thick wire to the extremities of the other parts, that they may form, when drawn out, after the matter of the mould is properly set and firm, a channel for pouring in the melted metal, and vents for the air; which otherwise, by the rarefaction it would undergo from the heat of the metal, would blow it out or burst the mould. In a short time the plaster and talc will set and become hard, when the stick and wires may be drawn out, and the frame or coffin in which the mould was cast taken away: and the mould must then be put first into a moderate heat, and afterwards, when it is as dry as can be rendered by that degree, removed into a greater; which may be gradually increased till the whole be red hot. The animal, or part of any vegetable, which was included in the mould, will then be burnt to a coal; and may be totally calcined to ashes, by blowing for some time gently into the channel and passages made for pouring in the metal, and giving vent to the air, which will, at the same time that it destroys the remainder of the animal or vegetable matter, blow out the ashes. The mould must then be suffered to cool gently; and will be perfect; the destruction of the substance of the animal or vegetable having produced a hollow of a figure correspondent to it: but it may be nevertheless proper to shake the mould, and turn it upside down, as well as to blow with bellows into each of the air vents, in order to free it wholly from any remainder of the ashes; or, where there may be an opportunity of filling the hollow with quicksilver without expense, it will be found a very effectual method of clearing the cavity, as all dust, ashes, or small detached bodies will necessarily rise to the surface of the quicksilver, and be poured out with it. The mould being thus prepared, it must be heated very hot when used, if the cast be made with copper or brass; but a less degree will serve for lead or tin: and the matter being poured in, the mould must be gently struck; and then allowed to rest till it be cold: at which time it must be carefully taken from the cast, but without the least force; for such parts of the matter as appear to adhere more strongly, must be softened by soaking in water, till they be entirely loosened, that none of the more delicate parts of the cast may be broken off or bent. Where the alumen plumosum, or talc, cannot be procured, the plaster may be used alone; but it is apt to be calcined by the heat used in burning the animal or vegetable from whence the cast is taken, and to become of too incohering and crumbly a texture: or, for cheapness, Sturbridge or any other good clay, washed over till it be perfectly fine, and mixed with an equal part of sand, and some flocks cut small, may be employed. Pounded pumice-stone and plaster of Paris, taken in equal quantities, and mixed with washed clay in the same proportion, is said to make excellent moulds for this and parallel uses. Casts of medals, or such small pieces as are of a similar form, may be made in plaster by the method directed for bas relievos. Nothing more is required than to form a mould by laying them on a proper board; and having surrounded them by a rim made of a piece of card, or pasteboard, to fill the rim with soft tempered plaster of Paris; which mould, when dry, will serve for several casts. But it is better to form the mould of melted sulphur; which will produce a sharper impression in the cast, and be more durable than those made of plaster. The casts are likewise frequently made of sulphur, which being melted must be treated exactly in the same manner as the plaster. For taking casts from medals, a mixture of brimstone and red lead has been recommended; equal parts of these are to be put over the fire in a ladle, till they soften to the consistence of pap; then they are kindled with a piece of paper, and stirred for some time. The vessel being afterwards covered close, and continued on the fire, the mixture grows fluid in a few minutes. It is then to be poured on the medal, previously oiled and wiped clean. The casts are very neat; their color sometimes a pretty deep dark, sometimes a dark gray: they are very durable; and when soiled may be washed clean in spirit of wine. Dr. Lettsom recommends tin foil for taking off casts from medals. The thinnest kind is to be used. It should be laid over the subject from which the impression is to be taken, and then rubbed with a brush, or a pin, till it has perfectly received the impression. The tin foil should now be pared close to the edge of the metal, till it is brought to the same circumference; the medal must then be reversed, and the tin foil will drop off into a chip-box or mould placed ready to receive it. Thus the concave side of the foil will be uppermost, and upon this plaster of Paris, prepared in the usual manner, may be poured. When dry, the whole is to be taken out, and the tin foil sticking on the plaster will give a perfect representation of the medal, almost equal in beauty to silver. If the box or mould is a little larger than the medal, the plaster running round the tin foil will give the appearance of a white frame, or circular border; whence the new made medal will appear more neat and beautiful. Casts may be made likewise with iron, prepared in the following manner: Take any iron bar, or piece of a similar form, and, having heated it red hot, hold it over a vessel containing water, and touch it very slightly with a roll of sulphur, which will immediately dissolve it, and make it fall in drops into the water. As much iron as may be wanted being thus dissolved, pour the water out of the vessel; and pick out the drops formed by the melted iron from those of the sulphur, which contain little or no iron, and will be distinguishable from the other by their color and weight. The iron will thus be rendered so fusible, that it will run with less heat than is required to melt lead; and may be employed for making casts of medals, and many other such purposes, with great convenience and advantage. Impressions of medals, having the same effect as casts, may be made also of isinglass glue by the following means:—Melt the isinglass, beaten, as commonly used, in an earthern pipkin, with the addition of as much water as will cover it, stirring it gently till the whole is dissolved: then, with a brush of camel's hair, cover the medal, which should be previously well cleansed and warmed, and then laid horizontally on a board or table, greased in the part around the medal. Let them rest afterwards till the glue be properly hardened, and then, with a pin, raise the edge of it, and separate it carefully from the medal; the cast will be thus formed by the glue as hard as horn; and so light, that a thousand will scarcely weigh an ounce. In order to render the relief of the medal more apparent, a small quantity of carmine may be mixed with the melted isinglass; or the medal may be previously coated with leaf gold by breathing on it, and then laying it on the leaf, which will by this means adhere to it; but the leaf gold is apt to impair a little the sharpness of the impression. Impressions of medals may be likewise taken in putty; but it should be the true kind, made of calx of tin, and drying oil. These may be formed in the moulds, or moulds previously taken in plaster or sulphur; the manner directed for those of the plaster. These impressions will be very sharp and hard; but the greatest disadvantage that attends them, is their drying very slowly, and being liable in the mean time to be damaged.

Casting, in foundry, the running a metal into a mould, prepared for that purpose. See Foundry.

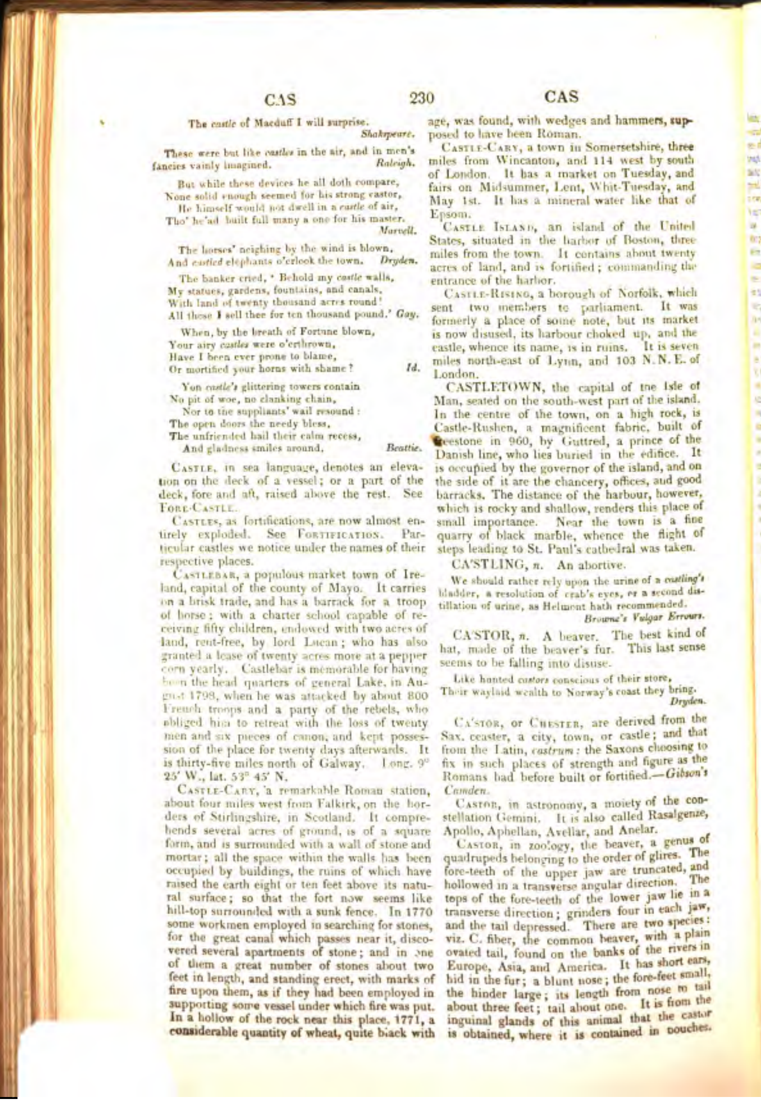
Ca'sting net. A net to be thrown into the water, and not left stationary.

Casting nets did rivers' bottoms sweep. *May's Virgil.*

CA'STLE, *n.*
Ca'stlery, or
Ca'stelry, *n.*
Ca'stlet, *n.*
Ca'stled, *adj.*
Ca'stellain, *n.*
Ca'stellany, *n.*
Castellated, *adj.*
Castella'tion, *n.*
Ca'stle-builder, *n.*
Ca'stle-building, *n.*
Ca'stle-crowned, *adj.*
Ca'stle-guard, *n.*
Ca'stle-ward, *n.*

Goth. *kastali*; Arm. *kestell*; Welsh *castell*; Ital. *castello*; Lat. *castellum*, dim. of *castrum*. Castle, says Johnson, is a strong house, fortified against assaults. A castle, says Sherwood, 'is properly a house furnished with towers, and incompassed by walls and ditches; and strengthened by a mount or donjon in the midst; yet the French courtiers tearme so any house of the king's.' There is another sort of castle, which we call a castle in the air, and the French, chateau en Espagne, which is frequently constructed by men of poetical and sanguine minds. Such constructors bear the name of castle-builders, and their occupation that of castle-building. Their activity in fabricating aërial dwellings very often reduces them to the necessity of inhabiting unpleasant earthly abodes. Castellan is the lord, and also the captain-governor, or constable of a castle; castellany is 'a castlewicke, or castleship; the estate, jurisdiction, or dignitie of a lord castellan;' castelry is the custody or government of a castle. Castellated signifies enclosed within a building, and also castle-like; and castellation, now obsolete, means to fortify a house so as to convert it into a castle. Castle-guard was one of the feudal tenures; and castle-ward an impost, laid upon those who resided within a certain distance of any castle, the produce of which was applied to the maintenance of those who held watch and ward within the fortress. Castled and castle-crowned denote surmounted by a castle.

Now stood hire *castel* faste by the sea,
And often with hire frendes walked she,
Here to disporten on the bank an-hie.
Chaucer. Cant. Tales.



The *castle* of Macduff I will surprise.
Shakspeare.

These were but like *castles* in the air, and in men's fancies vainly imagined. *Raleigh.*

But while these devices he all doth compare,
None solid enough seemed for his strong castor,
He himself would not dwell in a *castle* of air,
Tho' he'ad built full many a one for his master.
Marvell.

The horses' neighing by the wind is blown,
And *castled* elephants o'erlook the town. *Dryden.*

The banker cried, ' Behold my *castle* walls,
My statues, gardens, fountains, and canals,
With land of twenty thousand acres round!
All these I sell thee for ten thousand pound.' *Gay.*

When, by the breath of Fortune blown,
Your airy *castles* were o'erthrown,
Have I been ever prone to blame,
Or mortified your horns with shame? *Id.*

Yon *castle's* glittering towers contain
No pit of woe, no clanking chain,
Nor to the suppliants' wail resound:
The open doors the needy bless,
The unfriended hail their calm recess,
And gladness smiles around. *Beattie.*

Castle, in sea language, denotes an elevation on the deck of a vessel; or a part of the deck, fore and aft, raised above the rest. See Fore-Castle.

Castles, as fortifications, are now almost entirely exploded. See Fortification. Particular castles we notice under the names of their respective places.

Castlebar, a populous market town of Ireland, capital of the county of Mayo. It carries on a brisk trade, and has a barrack for a troop of horse; with a charter school capable of receiving fifty children, endowed with two acres of land, rent-free, by lord Lucan; who has also granted a lease of twenty acres more at a pepper corn yearly. Castlebar is memorable for having been the head quarters of general Lake, in August 1798, when he was attacked by about 800 French troops and a party of the rebels, who obliged him to retreat with the loss of twenty men and six pieces of canon, and kept possession of the place for twenty days afterwards. It is thirty-five miles north of Galway. Long. 9° 25' W., lat. 53° 45' N.

Castle-Cary, a remarkable Roman station, about four miles west from Falkirk, on the borders of Stirlingshire, in Scotland. It comprehends several acres of ground, is of a square form, and is surrounded with a wall of stone and mortar; all the space within the walls has been occupied by buildings, the ruins of which have raised the earth eight or ten feet above its natural surface; so that the fort now seems like hill-top surrounded with a sunk fence. In 1770 some workmen employed in searching for stones, for the great canal which passes near it, discovered several apartments of stone; and in one of them a great number of stones about two feet in length, and standing erect, with marks of fire upon them, as if they had been employed in supporting some vessel under which fire was put. In a hollow of the rock near this place, 1771, a considerable quantity of wheat, quite black with age, was found, with wedges and hammers, supposed to have been Roman.

Castle-Cary, a town in Somersetshire, three miles from Wincanton, and 114 west by south of London. It has a market on Tuesday, and fairs on Midsummer, Lent, Whit-Tuesday, and May 1st. It has a mineral water like that of Epsom.

Castle Island, an island of the United States, situated in the harbor of Boston, three miles from the town. It contains about twenty acres of land, and is fortified; commanding the entrance of the harbor.

Castle-Rising, a borough of Norfolk, which sent two members to parliament. It was formerly a place of some note, but its market is now disused, its harbour choked up, and the castle, whence its name, is in ruins. It is seven miles north-east of Lynn, and 103 N.N.E. of London.

CASTLETOWN, the capital of the Isle of Man, seated on the south-west part of the island. In the centre of the town, on a high rock, is Castle-Rushen, a magnificent fabric, built of [illegible]eestone in 960, by Guttred, a prince of the Danish line, who lies buried in the edifice. It is occupied by the governor of the island, and on the side of it are the chancery, offices, and good barracks. The distance of the harbour, however, which is rocky and shallow, renders this place of small importance. Near the town is a fine quarry of black marble, whence the flight of steps leading to St. Paul's cathedral was taken.

CA'STLING, *n.* An abortive.

We should rather rely upon the urine of a *castling's* bladder, a resolution of crab's eyes, or a second distillation of urine, as Helmont hath recommended.
Browne's Vulgar Errours.

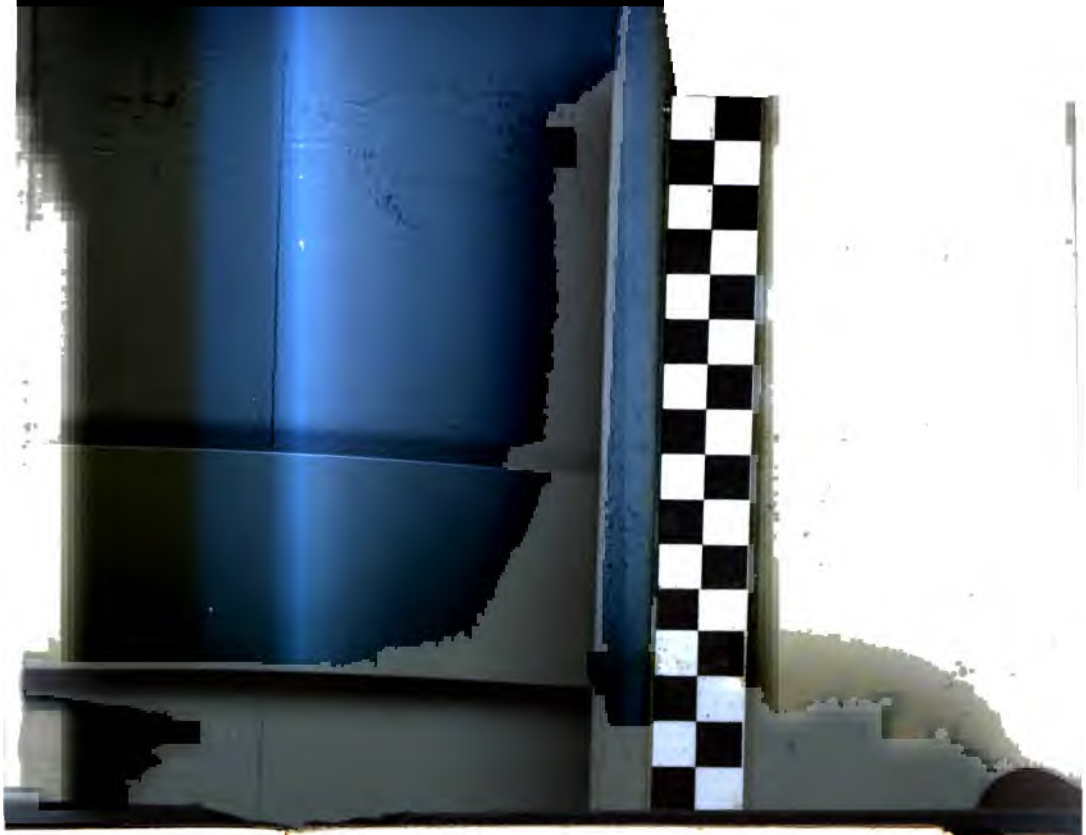
CA'STOR, *n.* A beaver. The best kind of hat, made of the beaver's fur. This last sense seems to be falling into disuse.

Like hunted *castors* conscious of their store,
Their waylaid wealth to Norway's coast they bring.
Dryden.

Ca'stor, or Chester, are derived from the Sax. ceaster, a city, town, or castle; and that from the Latin, *castrum*: the Saxons choosing to fix in such places of strength and figure as the Romans had before built or fortified.—*Gibson's Camden.*

Castor, in astronomy, a moiety of the constellation Gemini. It is also called Rasalgenze, Apollo, Aphellan, Avellar, and Anelar.

Castor, in zoology, the beaver, a genus of quadrupeds belonging to the order of glires. The fore-teeth of the upper jaw are truncated, and hollowed in a transverse angular direction. The tops of the fore-teeth of the lower jaw lie in a transverse direction; grinders four in each jaw, and the tail depressed. There are two species: viz. C. fiber, the common beaver, with a plain ovated tail, found on the banks of the rivers in Europe, Asia, and America. It has short ears, hid in the fur; a blunt nose; the fore-feet small, the hinder large; its length from nose to tail about three feet; tail about one. It is from the inguinal glands of this animal that the castor is obtained, where it is contained in pouches.



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Nothing equals the art with which these animals construct their dwellings. They choose a level piece of ground, with a small rivulet running through it. This they form into a pond by making a dam across; first by driving into the ground stakes of five or six feet in length, placed in rows, wattling each row with pliant twigs, and filling the interstices with clay, ramming it down close. The side next the water is sloped, the other perpendicular; the bottom is from ten to twelve feet thick, but the thickness gradually diminishes to the top, which is about two or three: the length of these dams is sometimes not less than 100 feet. Their houses are made in the water, collected by means of the dam, and are placed near the edge of the shore. They are built on piles; are either round or oval; but their tops are vaulted, so that their inside resembles an oven, the top a dome. The walls are two feet thick, made of earth, stones, and sticks, most artificially laid together, and the walls within neatly plastered. In each house are two openings, the one into the water, the other towards the land. The height of these houses above the water is eight feet. They often make two or three stories in each dwelling, for the convenience of change in case of floods. Each house contains from twenty to thirty beavers; and the number of houses in each pond is from ten to twenty-five. Each beaver forms its bed of moss; and each family forms its magazine of winter provisions, which consist of bark and boughs of trees. These they lodge under water, and fetch into their apartments as occasion requires. Their summer food is leaves, fruits, and sometimes crabs and craw-fish, but they are not fond of fish. To effect these works a community of 200 or 300 assembles; each bears his share in the labor; some fall to gnawing with their teeth trees of great size, to form beams or piles; others roll the pieces along the water; others dive, and with their feet scrape holes in order to place them in; while others exert their efforts to rear them in their proper places; another party is employed in collecting twigs to wattle the piles with; a third in collecting earth, stones, and clay; a fourth is busied in beating and tempering the mortar; others in carrying it on their broad tails to proper places; and with the same instrument they ram it between the piles, and plaster the inside of their houses. A certain number of smart strokes given with their tails is a signal made by the overseer for repairing to such and such places, either for mending any defects, or at the approach of an enemy; and the whole society attend to it with the utmost assiduity. Their time of building is early in summer, for in winter they never stir but to their magazines of provisions, and during that season are very fat. They breed once a-year, and bring forth at the latter end of the winter two or three young at a birth. Besides these associated beavers, there is a variety called terriers, which either want industry or sagacity to form houses like the others. They burrow in the banks of rivers, making their holes beneath the freezing depth of the water, and work up for a great number of feet. These also form their winter stock of provisions. In hunting the beavers the savages sometimes shoot them, always getting on the contrary side of the wind; for they are very shy, quick in hearing, and of a keen scent. This is generally done when the beavers are at work, or on shore feeding on poplar bark. If they hear any noise when at work, they immediately jump into the water, and continue there some time; and when they rise, it is at a distance from the place where they went in. They sometimes are taken with traps of poplar sticks laid in a path near the water, which, when the beaver begins to feed upon, they cause a large log of wood to fall upon their necks, which is put in motion by their moving of the sticks. The Indians generally prefer this way of taking them, because it does not damage their skins. In winter they break the ice in two places, at a distance from the house, the one behind the other. Then they take away the broken ice with a kind of racket, the better to see where to place their stakes. They fasten their nets to these, which have large meshes, and sometimes are eighteen or twenty yards in length. When these are fixed, they proceed to demolish the house, and turn a dog therein, which, terrifying the beaver, he immediately leaves it, and takes to the water; after which he is soon entangled by the net. The skins are very valuable. See Beaver. 2. C. huidobrius. Chilese beaver. Tail compressed, lanceolate, hairy; fore-feet lobed, hind-feet palmate; head nearly square; snout obtuse; eyes small; ears short, round; hair double like C. fiber; the undermost finer than a rabbit's, and hence valued by furriers; on the back cinereous; belly whitish. Inhabits Chili, in the deepest parts of lakes and rivers; fierce; feeds on fishes, on crabs chiefly; remains long under water; is without the wonderful architecture and castor of C. fiber; produces from two to three young; length about three feet. The soft or short hair very fine, and, like that of C. fiber, used in the manufacture of hats, and certain cloths which have the softness of velvet. In Chili the animal is denominated guillino.

Castor and Pollux, in meteorology, a fiery meteor, which appears sometimes sticking to a part of the ship, in form of one, two, or even three or four balls. When one is seen alone, it is called Helena, which portends the severest part of the storm to be yet behind; two are denominated Castor and Pollux, and sometimes Tyndarides, which portend a cessation of the storm. Castor and Pollux are called by the Spaniards, San Elmo; by the French, St. Elme, St. Nicholas, St. Clare, St. Helene; by the Italians, Hermo; by the Dutch, Vree Vuuren. These meteors are rarely seen till the tempest is nigh spent. When the meteor sticks to the masts, yards, &c., they conclude, from the air's not having motion enough to dissipate this flame, that a profound calm is at hand; if it flutter about, it indicates a storm.

Castor and Pollux, in pagan mythology, were twin brothers, sons of Jupiter, by Leda, the wife of Tyndarus, king of Sparta. Jupiter being enamoured of Leda, changed himself into a beautiful swan, and desired Venus to metamorphose herself into an eagle; after which the goddess pursued the god with apparent ferocity, and .'-

piter fled for refuge into the arms of Leda, who was bathing in the Eurotas. Jupiter availed himself of his situation, and Leda, who was already pregnant, nine months after brought forth two eggs, from one of which issued Pollux and Helena, and from the other Castor and Clytemnestra. The two former were the offspring of Jupiter, and the latter were supposed to be the children of Tyndarus. Immediately after their birth Mercury carried the two brothers to Pallene where they were educated; and when they arrived at mature age they embarked with Jason to go in search of the golden fleece; in which expedition both remarkably displayed their courage. Pollux conquered and slew Amycus, in the combat of the cestus, from which he was ever after considered the god and patron of boxing and wrestling; and Castor distinguished himself in the management of horses. After their return from Colchis they united in the most inviolable friendship, and cleared the Hellespont and neighbouring seas of pirates; and hence they have always been considered friendly to navigation. In a violent storm, during the Argonautic expedition, two flames of fire were seen to play round the heads of the sons of Leda, and the tempest instantly ceased, and the sea was calmed; from which their power to protect sailors has been more firmly believed, and the two fires, so frequent in storms, have since been known by the name of Castor and Pollux. The two brothers made war against the Athenians to recover their sister Helen, whom Theseus had carried away; and from their clemency to the conquered they obtained the surname of Anaces, or benefactors. They were initiated in the sacred mysteries of the Cabiri, and in those of Ceres at Eleusis. Having been invited to a feast when Lynceus and Idas were going to celebrate their marriage with Phœbe and Talaira, the daughters of Leucippus, brother to Tyndarus, they became enamoured of the two women whose nuptials they were to celebrate, and determined to carry them off and marry them, which so provoked Lynceus and Idas, that a battle ensued, wherein Castor killed the former, and was killed by the latter. Pollux being immortal, after killing Idas, to revenge the death of his brother, entreated Jupiter to restore his beloved Castor, or to be himself deprived of immortality; and Jupiter allowed Castor to share the immortality of his brother. Thus, so long as the one was upon earth, the other was detained in the infernal regions, and they lived and died alternately every day; or, as others say, every six months. For this act of fraternal love Jupiter translated them into the skies, where they formed the constellation Gemini, one of which stars rises as the other sets. A martial dance, called the Pyrrhic or Castorian dance, was invented in honor of these deities, whom the Cephalenses placed among the Dii Magni, and offered to them white lambs. The Romans also paid them particular honors, on account of the assistance they are said to have given them in an engagement against the Latins; in which, appearing mounted on white horses, they turned the scale of victory in their favor for which a temple was erected to them in the forum.

Castoreum, in the materia medica, Castor; the inguinal glands of the beaver. The ancients had a notion that it was lodged in the testicles; and that the animal, when hard pressed, would bite them off, and leave them to its pursuers, as if conscious of what they wanted to destroy him for. According to Bouillon La Grange, it consists of a mucilage, a bitter extract, a resin, an essential oil, in which its peculiar smell appears to reside, and a flaky crystalline matter, much resembling the adipocere of biliary calculi. The best sort of castor comes from Russia. The Russian castor is in large hard round bags, which appear, when cut, full of a brittle, red, liver-colored substance, interspersed with membranes and fibres exquisitely interwoven. An inferior sort is brought from Dantzic, and is generally fat and moist. The American castor, which is the worst of all, is in longish thin cods. Russia castor has a strong disagreeable smell; and an acrid, bitterish, and nauseous taste. Water extracts the nauseous part, with little of the finer bitter; rectified spirit extracts this last without much of the nauseous; proof spirit both: water elevates the whole of its flavor in distillation: rectified spirit brings over nothing. Castor is looked upon as one of the antihysteric medicines: some celebrated practitioners, nevertheless, have doubted its virtues; and Neuman and Stahl declare it insignificant. Experience, however, has shown that the virtues of castor are considerable, though less than they have in general been supposed.

Castor Oil, in medicine, See Ricinum.

CASTRAMETA'TION, *n.* Lat. *castrametor.* The art or practice of encamping and tracing out camps. By an extension of its original meaning, it is sometimes applied to all the ordinary operations of a campaign.

> Their *castrametation*, even under the most practicable and commodious circumstances of ground, is sometimes ambiguous. *Warton.*

CA'STRATE, *v.*
Castra'tion, *n.* } Lat. *castro.* To geld; to remove the obscene parts of a writing; to take out any part of a book; generally, though seldom used in this sense, to take away. The operation of gelding.

> Ye *castrate* the desires of the flesh. *Martin.*
>
> The largest needle should be used in taking up the spermatic vessels in *castration.* *Sharpe.*

Castration. See Surgery.

Castration of Brutes. See Gelding and Spaying.

Castration of Plants consists in cutting off the antheræ, or tops of the stamina, before they have attained maturity, and dispersed their male dust. This operation has been frequently practised by the moderns, with a view to establish or confute the doctrine of the sexes of plants. See Botany. It succeeds principally on those which have their male flowers detached from the female. In such as have both male and female flowers contained within the same covers, this operation cannot be easily performed without endangering the neighbouring organs.

CASTREN'SIAN, *adj.* Lat. *castrensis.* Belonging to a camp.

CASTRENSIANI, or Castrenses, in antiquity, servants in the Greek emperor's household, who had the care of what related to his table and cloathing.

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CASTRES, a large town of France, in the department of the Tarn, and ci-devant province of Languedoc, of which it was recently an episcopal see. It is seated in a fine valley on the Agout, and has some flourishing manufactures of cotton, woollen, silk, and stuffs. In the reign of Louis XIII. Castres was a kind of protestant republic; but in 1629 its fortifications were demolished. Near it are mines of turquoise stones. It was the birth place of Rapin de Thoyras, Abel Boyer, and M. Dacier. It is twenty miles south of Alby, and thirty-five east of Thoulouse. Population 13,727.

CASTRO, or Castremonium, a duchy and town of Italy, in the States of the Church, between St. Peter's Patrimony, the Mediterranean, Tuscany, the Orvietana, and the river Marta. The duchy is about twenty-five miles in length, and from ten to thirteen broad. The town of Castro is situated near the river Ospada, ten miles from the sea, and was once much larger than at present. In 1649 pope Innocent X. ordered it to be razed to the ground, in consequence of the inhabitants having murdered the bishop whom he had sent here. The episcopal see was at this time removed to Aquapendente. Twenty-five miles south-west of Orvieto, and fifty-five north-west of Rome.

Castro, the ancient Mytilene, a sea-port town on the north-east coast of the island of Metelin, standing on a lofty neck of land, with a harbour on each side. It is about a mile in circumference, and is well built. Here is a castle three quarters of a mile in compass; and to the west the ruins of the city of Mytilene. The town contains three or four Greek churches. Distant thirty miles south-west of Adramiti. Long. 26° 28′ E., lat. 39° N.

Castro, the principal town of the island of Lemnos, situated on the west side, and on the site of the ancient Myrina. It is about a mile and a half in circumference, and has a mixed population of about 3000 Turks and Greeks. The latter have three churches and a bishop. On a high rock in the neighbourhood stands a strong castle.

CASTRUCCIO (Castracani), a celebrated Italian general, born at Lucca, in Florence, in 1284, and left by his parent or parents in a vineyard covered with leaves, where he was found by a widow lady and a priest her brother. The lady having no children, they resolved to bring him up, and educate him as their own child. He was destined for the priesthood, but was scarcely eighteen when he entered the army, and was made a lieutenant of a company of foot by Francisco Guinigi, of the party of the Ghibelines. He was soon after made general, and became the chief of the party. Those who had been banished from their country fled to him for protection, and promised, that if he could restore them to their estates, they would serve him so effectually that the sovereignty of their country should be his reward. He entered into a league with the prince of Milan, and kept his army constantly on foot. The Florentines entered into a war with him, but Castruccio fought his way through them; and the supreme authority of Tuscany was ready to fall into his hands, when a period was put to his life. In May, 1328, he gained a complete victory over his enemies, after which he was seized with an ague, which carried him off in a few days, in the forty-fourth year of his age.

CASTRUM Doloris, in writers of the middle age, denotes a catafalco, or a lofty tomb of state, erected in honor of some person of eminence, usually in the church where his body is interred; and decorated with arms, emblems, lights, &c.

CASU Consimili, in English law, a writ of entry granted where a tenant, by courtesy or for life, aliens either in fee, in tail, or for the term of another's life. It is brought by him in reversion against the person to whom such tenant does so alien, to the prejudice of the reversioner in the tenant's life time.

Casu Proviso, a writ of entry founded on the statute of Gloucester, where a tenant in dower aliens the lands she so holds in fee, or for life; and lies for the party in reversion against the alience.

CA'SUAL, *adj.* } Fr. *casuel;* Lat. *casus.*
Ca'sually, *adv.* } All these words signify
Ca'sualness, *n.* } dependence upon accident,
Ca'sualty, *n.* } chance, uncertainty; something that does not arise from a set purpose, but springs from a momentary and unexpected cause. A casualty is a thing that happens suddenly and unforeseen; a mischance that produces unnatural death.

The revenue of Ireland, both certain and *casual*, did not arise unto ten thousand pounds. *Davies on Ireland.*

That which seemeth most *casual* and subject to fortune, is yet disposed by the ordinance of God. *Raleigh.*

With more patience men endure the losses that befal them by mere *casualty*, than the damages which they sustain by injustice. *Id.*

Wool new shorn, laid *casually* upon a vessel of verjuice, had drank up the verjuice, though the vessel was without any flaw. *Bacon.*

Go, bid my women
Search for a jewel, which too *casually*
Hath left my arm. *Shakspeare.*

Builds in the weather on the outward wall,
Even in the force and road of *casualty.* *Id.*

Whether found where *casual* fire
Had wasted woods, on mountain, or in vale,
Down to the veins of earth. *Milton.*

Most of our rarities have been found out by *casual* emergency, and have been the works of time and chance, rather than of philosophy. *Glanville.*

The commissioners entertained themselves by the fire side in general and *casual* discourses. *Clarendon.*

We find one *casualty* in our bills, of which, though there be daily talk, there is little effect.
Grant's Bills of Mortality.

That Octavius Cæsar should shift his camp that night that it happened to be took by the enemy, was a mere *casualty;* yet it preserved a person who lived to establish a total alteration of government in the imperial city of the world. *South.*

I should have acquainted my judge with one advantage, and which I now *casually* remember. *Dryden.*

It is observed in particular nations, that, within the space of two or three hundred years, notwithstanding all *casualties*, the number of men doubles.
Burnet's Theory.

The expences of some of them always exceed their certain annual income; but seldom their *casual* supplies. I call them *casual*, in compliance with the common form. *Atterbury.*

He that resigns his peace to little *casualties*, and suffers the course of his life to be interrupted by fortuitous inadvertencies or offences, delivers up himself to the direction of the wind, and loses all that constancy and equanimity which constitute the chief praise of a wise man. *Johnson. Rambler.*

CASUARINA, in botany, a genus of the monandria order, and monœcia class of plants: MALE CAL. of the amentum: COR. a bipartite scale: FEMALE CAL. of the amentum: COR. none: the STYL. bipartite: fruit, a cone. Species, five: three from the South Sea islands, and two from the East Indies.

CA'SUIST, *n. s.* } Fr. *casuiste*; from
CASUI'STICAL, *adj.* } Lat. *casus*. A casuist is
CA'SUISTRY, *n.* } one who studies, and gives judgment upon, cases of conscience; and who, generally, is too prone to deal in dangerous subtleties, and 'to divide a hair twixt north and north-west side.' Pascal has exposed this race of beings, and their shameful casuistry, in a masterly manner, in his Provincial Letters.

The judgment of any *casuist*, or learned divine, concerning the state of a man's soul, is not sufficient to give him confidence. *South.*

What arguments they have to beguile poor simple unstable souls with, I know not, but surely the practical, *casuistical*, that is, the principal vital part of their religion savours very little of spirituality. *Id.*

You can scarce see a bench of porters without two or three *casuists* in it, that will settle you the rights of princes. *Addison.*

Who shall decide when doctors disagree,
And soundest *casuists* doubt, like you and me. *Pope.*

One only doubt remains, full oft I've heard,
By *casuists* brave and deep divines averred,
That 'tis too much for human race to know,
The bliss of heaven above, and earth below. *Id.*

This concession would pass for good *casuistry* in these ages. *Id. Odyssey. Notes.*

Morality, by her false guardians drawn,
Chicane in furs, and *casuistry* in lawn. *Id.*

CASUISTS. Escobar has made a collection of the opinions of all the casuists before him. M. Le Fevre, preceptor of Louis XIII. called the books of the casuists the art of quibbling with God. Mayer published a bibliotheca of casuists, containing an account of all the writers on cases of conscience, ranged under three heads; the first comprehending the Lutheran, the second the Calvinist, the third the Romish, casuists.

CASUISTRY is drawn partly from natural reason or equity; partly from authority of Scripture, the canon law, councils, fathers, &c. To casuistry belongs the decision of all difficulties arising about what a man may concern himself, and lawfully do or not do; what is sin or not sin; what things a man is obliged to do, to discharge his duty; and what he may omit without breach of it. Professors of casuistry, however, have confined themselves to no rule of morals which they have not instructed mankind to evade. The Jesuits held the foremost rank in this long-famous study: until the Lettres Provinciales of Pascal, swept their whole system into the dust. A useful English translation of them was given to the public a few years since, by Dr. Cox.

CASUS OMISSIONIS, in Scots law. In action proving the tenor of obligations inextinguishable by the debtor's retiring or cancelling them, it is necessary for the pursuer, before he is allowed a proof of the tenor, to condescend upon such a casus omissionis, or accident by which the writing was destroyed, as shows it was lost while in the writer's possession.

CASWELL, a county of North Carolina, in Hillsborough district; bounded on the east by Person; on the north by Virginia: on the west by Guilford, and on the south by Orange county. Leesburgh is the chief town.

CAT, *n.* } Fr. *chat*; Ital.
CAT-IN-PAN, *n.* } *gatto*; Span. and
CAT-O'-NINE TAILS, *n.* } Port. *gato*; Arab
CAT'S PAW, *n.* } *kith*; Per. *katt*;
CAT-EYED, *adj.* } Heb. *kat*; Turk.
CAT-A-MOU'NTAIN, *n* & *adj.* } *kady*; Rus. *kote*;
CA'TCAL, and } Pol. *kote*; Welsh,
CATPIPE, *n.* } *cath*; Ic. *cat*; Ar.
CATERWA'UL, *v.* } *caz*; Goth. and
CA'TLIKE, *adj.* } all its dialects,
CA'TISH, *adj* } *kat*, or *katze*; Lat.
CA'TLING, *n.* } *catus*. A domestic animal that catches mice. See FELIS. A cat-o'-nine tails is a whip with nine lashes, used to punish criminals. To turn cat-in-pan, supposed to be corrupted from cate in pan, is to change sides; but the quotation from Bacon shows that it had formerly another meaning. Cat's paw is a trivial expression, signifying the tool of another person. Cat-a-mountain is a fierce animal, resembling a cat; and a catcal is a shrill, squeaking instrument, once much employed by critics, in the play-house, to condemn plays. Catling means a young cat; catgut; a dismembering knife used by surgeons; and the down growing about walnut trees.

full oft
Have I, upon this benche, faren full wele·
Here have I eten many a merry mele.
And fro the bench he drove away the *cat*,
And laid adoun his potent and his hat,
And eke his scrip and set himself adoun.
Chaucer. Cant. Tales.

'Twas you incensed the rabble:
Cats that can judge as fitly of his worth,
As I can of those mysteries, which heaven
Will not have earth to know. *Shakspeare.*

Thrice the brinded *cat* hath mewed. *Id.*

A lioness, with udders all drawn dry,
Lay couching, head on ground, with *cat-like* watch.
Id.

What musick there will be in him, after Hector has knocked out his brains, I know not. But I am sure none; unless the fiddler Apollo get his sinews to make *catlings* of. *Id.*

There is a cunning which we, in England, call the turning of the *cat in the pan*; which is, when that which a man says to another, he lays it as if another had said it to him. *Bacon.*

What a *caterwauling* do you keep here! If my lady has not called up her steward Malvolio, and bid him turn you out of doors, never trust me. *Id.*

Some songsters can no more sing in any chamber but their own, than some clerks can read in any book but their own; put them out of their road once, and they are mere *cat-pipes* and dunces. *L'Estrange.*

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Was no dispute between
The *caterwauling* brethren? *Hudibras.*

You dread reformers of an impious age,
You awful *cat o' nine tails* to the stage,
This once be just, and in our cause engage.
Prologue to Vanbrugh's False Friend.

If *cat-eyed*, then a Pallas is their love;
If freckled, she's a party-colored dove. *Dryden.*

The black prince of Monomotapa, by whose sides were seen the glaring *cat-a-mountain*, and the quill-darting porcupine. *Arbuthnot and Pope's Scriblerus.*

A young lady, at the theatre, conceived a passion for a notorious rake that headed a party of *catcals.*
Spectator.

Three *cat-calls* be the bribe
Of him whose chattering shames the monkey tribe.
Pope.

Have I not sat with thee full many a night,
When dying embers were our only light,
When every creature did in slumbers lie,
Besides our *cat*, my Colin Clout and I!
No troublous thoughts the *cat* or Colin move,
While I alone am kept awake by love. *Gay.*

Let *cats* and *catlings* of ignoble line,
Slumber in bee-hive chairs, in dairies dine.
Huddisford.

Ye sage divines, if so concise our span,
Who for preferment would turn *cat-in-pan*?
Since clergymen and *cats* one fate betides,
And worms shall eat their sermons and their hides.
Id.

There, like Alcena's, shall Grima'kin's son
In bliss repose, his mousing labours done;
Fate, envy, curs, time, tide, and traps, defy,
And *caterwaul* to all eternity *Id.*

CAT, in sea affairs, a ship employed in the coal trade, formed from the Norwegian model. It is distinguished by a narrow stern, projecting quarters, a deep waist, and by having ornamental figures on the prow. These vessels are generally built remarkably strong, and carry from 400 to 600 tons, or in the language of the mariners, from twenty to thirty keels of coals. Cat is also a sort of strong tackle, or combination of pullies, to hook and draw the anchor perpendicularly up to the cat-head.

CAT, in zoology. See FELIS.

CATABA'PTIST, Gr. κατα and βαπτιζω. An opponent, or abuser, of baptism, particularly of that of infants.

CATABASION, from καταβαινειν, to descend; in the Greek church, a place under the altar wherein the relics are kept.

CATABAW, a river of the United States, which rises at the foot of the Apalachian Mountains, in North Carolina; thence runs east for nearly forty miles; then turns gradually south, afterwards south by east, and passing into South Carolina, where it obtains the name of the Wateree, afterwards unites with the Congaree, and forms the Santee.

CATABAW, a town of South Carolina, in the north part of Camden district, a few miles east of the river of this name adjoining the divisional line of north Carolina, near the main road leading from Camden to Charlotte, about fifty-six miles north from Philadelphia.

The CATABAW INDIANS were a nation of North Americans, inhabiting the above town and district. They were for many years at war with the Six Nations, and were reckoned the most formidable of their enemies. They have often penetrated into their country, which it is said no southern or western tribe ever did.

CATABULENSES, in the middle age, a sort of ministers of the empire, appointed to conduct the public carriage from one catabulum, or stage, to another. The catabulenses also had the charge of conveying the public corn to and from the mills; whence, in the Theodosian code, they are joined with bakers.

CATABULUM, in the middle age, a kind of stable, wherein beasts, especially of burden and carriage, were kept for the public service. The ancient Christians were sometimes condemned to serve in the catabula, that is to work at the cleaning of them, attending the beasts, &c.

CATACHRE'SIS, *n.* } From καταχρησις,
CATACHRE'STICAL, *adj.* } abuse. The catachresis is, however, not always a fault; it is even sometimes a great beauty. It is a trope, which borrows the name of one thing to express another; and is censurable only when it is ungracefully and violently employed. When, in describing the descent of Raphael, Milton, instead of using the word flies, says, that he '*sails* between worlds and worlds,' the catachresis gives additional animation. Catachrestical is forced, far-fetched.

I ask, if now and then he does not offer at a *catachresis*, wresting and torturing a word into another meaning. *Dryden.*

A *catachrestical* and far-derived similitude it holds with men, that is, in bifurcation.
Browne's Vulgar Errours.

CATACLASIS, from κατακλαω, I distort; in medicine, denotes a disorder of the eye, wherein the eyelid is inverted by a convulsion of the muscles that close it.

CA'TACLYSM, old Fr. *cataclisme*; κατακλυσμος. A deluge; an inundation: used generally for the universal deluge.

The opinion that held these *cataclysms*, and empyroses universal, was such as held that it put a total consummation unto things in this lower world. *Hale.*

CA'TACOMBS, *n.* From κατα and κομβος, a hollow or cavity. Subterraneous cavities for the burial of the dead, of which there are a great number about three miles from Rome, supposed to be the caves and cells where the primitive Christians hid and assembled themselves, and where they interred the martyrs, which are accordingly visited with devotion. *Chambers.*

On the side of Naples are the *catacombs*, which must have been full of stench, if the dead bodies that lay in them were left to rot in open niches. *Addison.*

CATACOMBS are subterraneous caves used for tombs, and sometimes form streets of tombs. They have been constructed of various forms by all ancient nations; but those of Egypt, Naples, Syracuse, and Paris, may be considered as the most celebrated.

Before we enter into any detailed account of the Egyptian catacombs, it will be but just to furnish some notice of the labors of the distinguished and persevering individual to whom we are principally indebted for our knowledge of these vast funeral relics. If the late Mr. Belzoni was less critically, or less profoundly, versed in the science and literature of antiquity, than some other of those European travellers who have busied themselves in exploring the wonders of Egypt, he was in native shrewdness of observation, enterprising perseverance, and presence of mind in new and untried situations, inferior to none, and superior to most. It was he who found access to that pyramid (of Cephrenes) whose interior chambers the mercenary cupidity, and the antiquarian curiosity, of centuries had sought for in vain; and it was Belzoni who, not merely discovered and penetrated the subterranean mysteries of a Theban tomb, or rather a sepulchral palace, or perhaps temple, which had been closed for thousands of years; but actually, though possessed of very limited resources, save those of his own ingenuity, effected its virtual transportation from the capital city of the ancient world, to the metropolis of the modern.

Our space will only permit a notice of Belzoni's principal discovery, namely, the tomb of 'Psammis the Powerful,' which may assuredly be considered as the chef d' œuvre of ancient sepulture. It is situated in the neighbourhood of Beban el Malook; and Belzoni, when he had passed through the external aperture, found himself in a beautiful hall, twenty-seven feet six inches, by twenty-five feet ten inches, in which were four pillars, three feet square. At the end of this room, and opposite the aperture, is a large door, from which three steps lead down into a chamber with two pillars. This is twenty-eight feet two inches, by twenty five feet six inches. The pillars are three feet ten inches square. Returning into the entrance-hall, he saw on the left of the aperture a large staircase, which descended into a corridor; this is thirteen feet four inches long, seven and a half wide, and has eighteen steps. At the bottom he entered a beautiful corridor thirty-six feet six inches, by six feet eleven inches. Belzoni perceived that the paintings became more perfect as he advanced farther into the interior. They retained their gloss, or a kind of varnish over the colors, which had a beautiful effect; the figures being painted on a white ground. At the end of this corridor he descended ten steps into another, seventeen feet two inches, by ten feet five inches. Proceeding onwards, through a series of apartments, Belzoni says that the treasure he found in the centre of the principal saloon had not 'its equal in the world.' The sarcophagus to which he alludes is now in the British Museum, and is formed of the finest oriental alabaster, nine feet five inches long, and three feet seven inches wide; its thickness is only two inches, and it is transparent when a light is placed in the inside of it. It is minutely sculptured within and without with several hundred figures, which do not exceed two inches in height. The cover was not there, it had been taken out and broken into several pieces, which were found in digging before the first entrance. The sarcophagus was over a staircase in the centre of the saloon, which communicated with a subterraneous passage leading downwards, hree hundred feet in length. At the end of this ssage was found a great quantity of bats' dung, which choked it up. One hundred feet from the entrance was a staircase in good preservation, but the rock below had changed its substance from a beautiful solid calcareous stone into a kind of black rotten slate, which crumbled into dust only by touching. Belzoni, in further describing the tomb, says 'this subterraneous passage proceeded, in a south-west direction through the mountain;' and he adds, 'I measured the distance from the entrance, and also the rocks above, and found that the passage reaches nearly half way through the mountain to the upper part of the valley. I have reason to suppose that this passage was used to come into the tomb by another entrance, but this could not be after the death of the person who was buried there, for at the bottom of the stairs just under the sarcophagus a wall was built, which entirely closed the communication between the tomb and the subterraneous passage. Some large blocks of stone were placed under the sarcophagus horizontally, level with the pavement of the saloon, that no one might perceive any stairs or subterranean passage was there. The door-way of the side-board room had been walled up, and forced open, as we found the stones with which it was shut, and the mortar in the jambs. The staircase of the entrance-hall had been walled up also at the bottom, and the space filled with rubbish, and the floor covered with large blocks of stone, so as to deceive any one who should force the fallen wall near the pit, and make him suppose that the tomb ended with the entrance-hall and the drawing-room. The tomb faces the north-east, and the direction of the whole runs straight south-west.'

The tombs of Gournou are not far from Carnak. These sepulchres are excavated in all directions in the rocks, but generally with the entrance facing the east, as the chain of these mountains runs from north to south. They are intermixed of all sizes, and some of them have porticoes hewn out of the rocks before the entrance; but generally they are within the outer door, which is mostly adorned with well-finished figures and hieroglyphics, and generally the watchful fox is represented at each side of the inner door leading to the grotto. Some of them are very extensive, and run down in various directions, something like winding stairs, having on each side, at regular distances of a few paces, small chambers to deposit the mummies. Some have deep shafts, or wells, with excavations on each side of the shaft to receive the mummies; and at the bottom of the wells are passages leading to smaller apartments, with endless winding recesses.

Upper Egypt also contains some very remarkable catacombs. They are situated in the neighbourhood of the great canal, and consist of galleries extending a considerable way under ground, or rather into the rock. They were probably at first the quarries, whence the stones necessary for building the houses of Alexandria were extracted; and after having furnished the people of the country with materials for their habitations during their lives, they become their last abode after death. Though of immense extent, they did not require laborious efforts, the stratum of stone being calcareous and soft. It was, no doubt, on account of the softness of the rock that the ancient Egyptians covered the inside of the galleries with a kind of mortar, which has acquired a great degree of solidity, and is not easily broken. The great part of these subterraneous passages have fallen in. In the small number of those in which it was still possible to penetrate, was perceivable, on each side, three rows of tombs placed one above another. Their longest sides form an inclined plane inwards, so that the bottom of the tomb is much narrower than the upper part. At the extremity of some of these galleries there are separate chambers with their tombs, set apart, no doubt, for the interment of a family, or of a particular class of citizens.

If we may believe the Arabs, the catacombs have a subterraneous communication with the pyramids of Memphis. This opinion of their immense extent appears exaggerated. It does not, however, go beyond the other gigantic works of the Egyptians, and might be worth the trouble of verification. It is more certain that they extend as far as the sea at the head of the old port. The three grottoes, or cavities, hollowed out of the rock by the sea side, which the Egyptians have honored, rather improperly, with the name of Cleopatra's baths, appear to be a continuation of them. See EGYPT and AFRICA.

The catacombs ot Syracuse must now be noticed. These excavations commence beneath the church of St. John, and the primitive Christians are supposed to have assembled here secretly in times of persecution, and also to have interred their brethren in these vaults. These subterraneous alleys cross each other in many directions, and are hewn with more care and regularity than the catacombs of St. Januarius at Naples. On each side of the walls are recesses cut into the rock, and in the floor of these cavities coffins of all sizes have been hollowed out. In some places there are twenty troughs, one behind another; skeletons have been often found in them, with a piece of money in their mouths. Swinburne says that he saw 'a gold coin of the time of Icetas, that was just taken out of the jaws of a body found in a tomb here.'

Naples also boasts its catacombs, though they are in no shape comparable to those already noticed. There is a curious circumstance connected with the public exhibition of tne dead in these vaults, which deserves to be noticed. It is thus described by Swinburne:—'It is a custom here, on All Souls Day, to throw open the charnel-houses, lighted up with torches, and decked out with all the flowery pageantry of May-day; crowds follow crowds through these vaults to behold the coffins, nay the bodies, of their friends and relations; the floors are divided into beds like a garden; and under these heaps of earth the corpses are laid in regular succession; the place is perfectly dry, for the soil is rather a pounded stone than earth, and parches up the flesh completely in a twelvemonth; when that period is elapsed, tne body is taken up, dressed in a religious habit, and fixed like a statue in a niche; many retain a horrid resemblance to what they were when animated; and some show strong marks of agony in their distorted features.' They are much better preserved than the mummies of Toulouse, which pass for such singular curiosities.

The Parisian catacombs are of a comparatively modern date; and their employment as burial places appears to have originated in a 'royal ordinance, dated 1777.' Prior to that time they had been little more than a series of rudely constructed excavations or quarries, from whence the stone for the erection of Paris had been raised. The quarries had been worked from time immemorial without any system, every man working where he would, till it became dangerous to work them farther; and it was only known, as a popular tradition, that they extended under great part of the city, till the year 1774, when some alarming accidents roused the attention of the government. They were then properly surveyed, and plans of them taken, and the result was the frightful discovery that the churches, palaces, and most of the southern parts of Paris were undermined, and in imminent danger of sinking into the pit below them. A special commission was appointed to direct such works as might be required. The necessity of the undertaking was fully shown the very day that the commission was installed; a house in the Rue d'Enfer having that day sunk down eight-and-twenty metres below the level of its court-yard. Engineers were now employed to examine the whole of the quarries, and prop the streets, churches, palaces, and buildings which were in danger of being engulfed. One set of workmen were employed in this curious service—another in exploring the labyrinth of excavations, some of which were under the others, and opening galleries between them, that the extent of the peril might be known; and, to prevent future evils of the same kind, all the quarries which were still in use in the environs of Paris, were placed under the inspection of the commissioners, that they might be worked upon some safe system. Never had any men a more arduous or more important commission. The pillars which had been left by the quarriers in their operations, without any regularity, were, in many places, too weak for the enormous weight above; and, in most places, had themselves been undermined, or perhaps originally stood upon ground which had previously been hollowed. In some instances they had given way, in others the roof had dipt and threatened to fall; in others again, great masses had fallen in. The great aqueduct of Arcueil passed over this treacherous ground; it had already suffered some shocks, and if the quarries had continued to be neglected, an accident must sooner or later have happened to this water-course, which would have cut off the supply from the fountains of Paris, and have filled the excavations with water.

Such was the state of the quarries when the commission was appointed in 1777, under M. Charles Guillaumot, as inspector-general. The thought of converting them into a necropolis originated with M. Lenoir, lieutenant-general of the police; and the proposal for removing the dead from St. Innocent's was the more easily entertained, because a receptacle so convenient and so unexceptionable in all respects, was ready to receive them. That part of the quarries under the Plaine de Mont Souris was allotted for this purpose; a house known by the name of La Tombe Isoire, or Isound (from a famous robber who once infested that neighbourhood), on the old road to Orleans, was purchased with a piece of ground adjoining; and the first operations were to make an entrance into the quarries by a flight of seventy-seven steps (the depth being seventeen metres), and to sink a well from the surface, down which the bones might be thrown. Meantime the workmen below walled off that part of the quarries which was designed for the great charnel-house, opened a communication between the upper and lower vaults, and built pillars to prop the roof. When all these necessary preliminaries had been completed, the ceremony of blessing and consecrating the intended catacombs was performed with great solemnity; and on that same day the removal from the cemetery began.

The catacombs, during the revolution, were so much neglected, that in many places the soil had fallen in, and choked the communications; water came in by filtration, the roof was cracked in many places, and threatened fresh downfalls, and the bones themselves lay in immense heaps, mingled with the rubbish, and blocking up the way. It was not till 1810 that M. de Thury was enabled to pursue his plans; and the workmen then had to make galleries through the bones themselves, which in some places lay above thirty yards thick. It was necessary also to provide for a circulation of air, the atmosphere not having been improved by the quantity of animal remains which had been introduced. The manner in which this was effected is singularly easy. The wells which supplied the houses above with water were sunk below the quarries, and formed in those excavations so many round towers. M. de Thury merely opened the masonry of these walls, and luted into the opening the upper half of a broken bottle, with the neck outwards: it is only necessary to uncork two, three, or more of these bottles when fresh air is wanted. Channels were made to carry off the water, steps constructed from the lower to the upper excavation, pillars built in good taste to support the dangerous parts of the roof, and the skulls and bones built up along the walls: those which bore marks of disease, or were otherwise remarkable for their formation, were set apart, and arranged in a cabinet. The whole range was then fitted up with ornaments and inscriptions. Among the ornaments was a fountain, in which four golden fish are imprisoned. They appear to have grown in this unnatural situation, but they have not spawned; three of them have retained their brilliant color, but some spots have appeared upon the fourth; and it seems probable that exclusion from light may produce, though more slowly, the same effect upon them that it does upon vegetables.

The spring which rises here was discovered by the workmen, the basin was made for their use, and a subterraneous aqueduct carries off the waters. M. de Thury named it at first the 'Spring of Oblivion,' and inscribed over it these lines of Virgil:—

> Animæ quibus altera fato
> Corpora debentur, Lethæi ad fluminis undam
> Securos latices et longa oblivia potant.

This inscription has very properly been changed for the most apposite text which could have been found in Scripture:—Whosoever drinketh of this water shall thirst again: but whosoever drinketh of the water that I shall give him shall never thirst: but the water that I shall give him shall be in him a well of water, springing up into everlasting life.'

Amongst the other objects of attention in these subterranean vaults, may be particularly enumerated the mineralogical cabinet, which contains specimens of the strata of the soils of the catacombs; the collection of diseased bones; the revolutionary tombs and obelisks, and the fountain of the Woman of Samaria.

CATACOUSTICS, from *κατα* and *ακυω*, I hear; called also cataphonics, the science of reflected sounds, or that part of acoustics, which considers the properties of echoes. See Acoustics.

CATADIOPTRIC, or Catadioptrical, from *κατα*, against, and *διοπτεμαι*, to look through; belonging to a reflecting telescope.

CATADROMUS, from *κατο* and *δρομος*, a race, in antiquity, a stretched sloping rope in the theatres, down which the Funambuli walked to show their skill. Elephants were also taught to run down the catadromus. Suetonius speaks of the exploit of a Roman knight, who passed down the catadromus, mounted on an elephant's back.

CATAFALCO, Ital. a scaffold, a decoration of architecture, sculpture, and painting; raised on a timber scaffold, to show a coffin or tomb, in a funeral solemnity.

CATAGMATICK, *adj.* *καταγμα*, a fracture. That which has the power of consolidating the parts.

> I put on a *catagmatick* emplaster, and, by the use of a laced glove, scattered the pituitous swelling, and strengthened it. *Wiseman.*

CATAGRAPHA, in antiquity, denote oblique figures or views of men's faces, answering to what the moderns call profiles.

CATAHOOCHEE, a large navigable river of the United States, in Georgia, which rises in the Apalachian mountains, and running south through an extensive and fertile country, belonging to the Creek Indians, unites with the Flint in lat. 31°, and forms the Appalachicola.

CATALEPSIS, and Catalepsy, *n.* } Κατάληψις. A lighter species of the apoplexy or epilepsy.

> There is a disease called a *catalepsis*, wherein the patient is suddenly seized without sense or motion, and remains in the same posture in which the disease seizeth him. *Arbuthnot.*

> And three fat mice slew for his second course!
> But, while the third his grinders dyed with gore,
> Sudden those grinders closed—to grind no more!
> And (dire to tell) commissioned by Old Nick,
> A *catalepsy* made an end of Dick. *Huddisford.*

Catalepsis, from καταληψις, to seize or hold; catalepsy, a sudden suppression of motion and sensation; the body remaining in the same posture that it was in when seized. See Medicine.

CATALOGUE, *v.* & *n.* } Fr. *catalogue*,
Ca'talogize, *v.* } Ital. and Span. *catalogo*; Lat. *catalogus*; καταλογος. A roll, list, register, or enumeration of particulars; a register of things one by one.

> In the *catalogue* ye go for men;
> Showghes, water rugs, and demy wolves, are cleped
> All by the name of dogs. *Shakspeare.*
>
> Make a *catalogue* of prosperous sacrilegious persons, and I believe they will be repeated sooner than the alphabet. *South.*
>
> In the library of manuscripts belonging to St. Laurence, of which there is a printed *catalogue*, I looked into the Virgil which disputes its antiquity with that of the Vatican. *Addison.*
>
> Studied, deliberated, *catalogued* files of murder. *Burke.*
>
> Dick, premier cat upon the *catalogue*
> Of cats that grace a caterwauling age,
> Scared by fate's cat-call quits this earthly stage! *Huddesford.*

CATALONIA, a mountainous province on the north-east of Spain, bounded on the north by the Pyrenees, on the east by the Mediterranean, on the south by Valencia, and on the west by Arragon. It is about forty-four leagues long, and forty broad. The mountains are rich in iron, marble, lead, and coal, as well as in copper, tin, antimony, and other minerals. There are also found occasionally here topazes, amethysts, colored crystals, and other stones. The rivers and mineral waters of Catalonia are also numerous, and almost all flow into the Ebro. Irrigation is here carried on systematically, and the agriculture, as well as the general state of the manufactures and commerce, is superior to that of any part of Spain. The principal objects of culture are vines, on the largest scale; olives, silk, hemp, and flax; a few flocks of sheep are also raised. The wool produced is not above 30,000 cwt. annually. Another point in which Catalonia affords a striking contrast to other provinces of Spain, is in the abundance of its plantations. Elms, poplars, pines, spread over a variety of situations; and cork trees are so abundant, that this province exports this useful commodity to almost every part of Europe. The inhabitants are in number about 900,000, of which about 12,500 belong to the ecclesiastical profession or to monasteries; 7,000 come under the description of students (1020 to the law), while the titled class, or noblesse, are computed at 1266; and the number of servants at 20,963. The province contains one university, one archbishopric, one grand priory, seven bishoprics, sixteen commanderies of the order of Malta, and above 300 religious establishments. Its capital is Barcelona; the other principal towns are Tarragona, Tortosa, Lerida, Gerona, Figueras, and Manresa. A great trade was formerly carried on between Catalonia and the American colonies of Spain, and the commerce of the province is still brisk with Italy, the south of France England, Holland, and the north of Europe, the exports consist in produce of the province, and the imports in manufactures, corn, and salt fish. The inland traffic is chiefly with Arragon, which yields the Catalonians corn, wool, and silk. The principal manufactures are woollens, silks, and cottons, hats, leather, gunpowder, and hardware. The roads are said to be much neglected.

Catalonia was that part of Spain which first attracted the attention of the Romans, and first received the power and miseries of their sway. It was taken from them by the Goths in 470; from the latter by the Moors towards the year 712; and from them by the French in the beginning of the ninth century. Barcelona now became the capital of a territory, which corresponded in limits with the present province; and the last of its counts, Raymond V., ascended the throne of Arragon in 1137. The family then extended its dominion over the islands of Majorca and Minorca, the kingdom of Valencia, and finally the whole Spanish monarchy. The counts of Barcelona divided Catalonia into viguieries, which were governed by officers called viguiers. During the war of the succession, the inhabitants joined the standard of the archduke Charles; but, when the imperial troops had evacuated Spain, they were, after an obstinate resistance, obliged to yield to Philip V. The province then lost its privileges and peculiar laws, in punishment for its turbulent spirit, and became governed like the other parts of Spain.

The Catalonians are haughty and authoritative, looking down upon the rest of their countrymen as decidedly their inferiors; they regard the Castilians, in particular, with aversion; and bear towards the French an invincible animosity. They are distinguished, it is said, on the other hand, for their honesty, steadiness, and diligence. The principal families in Madrid generally have Catalans at the head of their affairs; and they are scattered, as muleteers and callessieros, over every province of the kingdom. Laborde has well described their general character. 'The desire of wealth,' says he, 'makes them industrious; emulation makes them active, leads them to every part of the word, and enables them to brave the perils of long voyages; and glory blinds them to every kind of danger. When they love, they love warmly; but their hatred is implacable, and they have rarely sufficient strength of mind to stifle their resentment. But we are not, therefore, to imagine the Catalan disposed to mischief; he is not so naturally. He works himself into a rage, and is loud, but seldom commits acts of violence. In a political point of view, the Catalan is restless and factious; he is for ever sighing for a liberty, or rather independence, which he has often attempted to acquire, and which has so frequently impelled him to take up arms. But, as devoted in his attachment, as terrible in his hatred, he is ready to make every sacrifice for a prince who knows how to gain his love.' This country formed the principal theatre of the revolutionary war against Buonaparte.

CATAMENIA, in medicine, from κατα, according to, and μην, the month, menses. The monthly discharge from the uterus of females after about the age of fourteen till near fifty. Although it has been much disputed, yet there can be but little doubt that it is a natural secretion, and not a rupture of the arteries in the uterus. During pregnancy, and while giving suck, if the person is in good health, the menses cease to flow. The discharge is commonly from five to six ounces, and last from three to five days. The use of this discharge is to lubricate the uterus, in order to render it fit for the reception of the fœtus, and after they have ceased, women rarely, if ever conceive.

CATANA, or Catina, in ancient geography, a town of Sicily, opposite to Ætna, on the south-east, one of the five Roman colonies; anciently built by the people of Naxos, seven years after the building of Syracuse, A. A.C. 728. It was the birth place of Charondas, the famous lawgiver. It is now called Catanea.

CATANANCHE, Candia lion's foot: a genus of the polygamia æqualis order, and syngenesia class of plants; natural order forty-ninth, compositæ: cal. imbricated; receptacle paleaceous; the pappus furnished with awns by caliculus of five stiff hairs. There are three species, of which the most remarkable is the C. cerulea which sends out many long, narrow, hairy leaves which are jagged on their edges like those of the buckshorn plantain, but broader. Each of the branches is terminated by single heads of flowers, of a fine blue color. It is a perennial plant, and may be propagated either by slips or seeds. The seeds ripen in August.

CATANIA, or Catanea, a city of Sicily, seated on the gulph, near the foot of Mount Ætna. It was founded by the Chalcidians, soon after the settlement of Syracuse, and enjoyed great tranquillity till Hiero I. expelled the citizens; and, after replenishing the town with a new stock of inhabitants, gave it the name of Ætna: immediately after his decease, it regained its ancient name, and the citizens returned to it. Catania fell into the hands of the Romans, among their earliest acquisitions in Sicily, and became the residence of a prætor. It was adorned with sumptuous buildings of all kinds, and every convenience was procured to supply the natural and artificial wants of life. It was destroyed by Pompey's son, but restored with superior magnificence by Augustus. The reign of Decius is famous in the history of this city, for the martyrdom of its patroness St. Agatha. On every emergency her intercession is implored. She is piously believed to have preserved Catania from being overwhelmed by torrents of lava, or shaken to pieces by earthquakes: yet its ancient edifices are covered by repeated streams of volcanic matter; and almost every house, even her own church, has been thrown to the ground. In the reign of William the Good, 20,000 Catanians, with their pastor at their head, were destroyed before the sacred veil could be properly placed to check the flames. In the last century, the eruptions and earthquakes raged with redoubled violence, and Catania was twice demolished. See Ætna. The prince of Biscari has been at great pains, and spent a large sum f money, in working down to the ancient town, hich, on account of the numerous torrents of lava, that have flowed out of Mount Ætna for these last thousand years, is now to be sought for in dark caverns, many feet below the present surface of the earth. Swinburne informs us, that he descended into baths, sepulchres, an amphitheatre, and a theatre, all very much injured by the various catastrophes that have befallen them. They were erected upon old beds of lava, and even built with square pieces of the same substance, which in no instance appears to have been fused by the contact of new lavas. The sciarra or stones of cold lava have constantly proved as strong a barrier against the flowing torrent of fire as any other stone could have been, though some authors were of opinion that the hot matter would melt the old mass, and incorporate with it. This city has been frequently defended from the burning streams, by the solid mass of its own ramparts, and by the air compressed between them and the lava; as appears by the torrent having stopped within a small distance of the walls, and taken another direction. But when the walls were broken or low, the lava collected itself till it rose to a great height, and then poured over in a curve. There is a well at the foot of the old walls of Catania, where the lava, after running along the parapet, and then falling forwards, has produced a very complete lofty arch over the spring. The church is a noble fabric. It is accounted the largest in Sicily, though neither a porch nor cupola has been erected, from a doubt of the solidity of the foundations, which are no other than the bed of lava that ran out of Ætna in 1669, and is supposed to be full of cavities. The organ is much esteemed by connoisseurs in musical instruments. Catania, in Mr. Swinburne's time, was reviving with great splendor. The harbour is at present considered as one of the best in Sicily, and the exports of wine, grain, oil, silk goods, and amber, are considerable. Population about 16,000. It is fifty-two miles south-west of Messina.

CATANZARO, a city of Naples, the capital of Calabria Ulterior, with a bishop's see. It is the usual residence of the governor of the province, and seated on a mountain near the Gulf of Squillace, forty-two miles south of Cosenza.

CATAPAN, or Catipan, from κατεπανω, captain, a name given by the Greeks, about the twelfth century, to the governor of their dominions in Italy.

CATAPELTA, an instrument of punishment among the ancients, consisting of a kind of press, composed of planks, between which the criminal was crushed to death.

CATAPHONICS, the science which investigates the properties of reflected sounds. See Acoustics.

CATAPHRACT, *n.* Lat *cataphracta*; καταφρακτος. A horseman in complete armor.

> On each side went armed guards,
> Both horse and foot; before him and behind,
> Archers and slingers, *cataphracts* and spears.
>
> *Milton.*

CATAPHRACTA, from κατα, and φρασσω, to arm; in the ancient military art, a piece of heavy defensive armour, formed of cloth or leather, fortified with iron scales or links, wherewith

CATAPULTA.

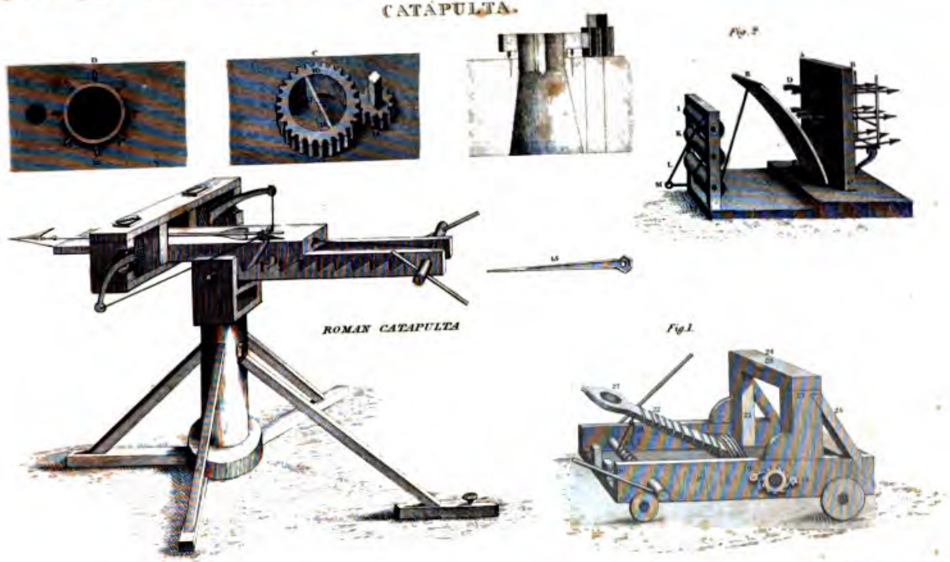

Fig. 2

ROMAN CATAPULTA

Fig. 1.

London, Published by Thomas Tegg, 73 Cheapside.

J. Shury sculp.

CAT

...times only the breast, somet
...ly, and sometimes the horse t
...was in use among the Sarma
...other barbarians. The Rom
...t only for their foot; and
...kept it till the time o
...military discipline growing
...had thought the cataphract
...too great a load to bea
...both by, choosing rather t
...bare-breasted: by wh
...the Goths, multitudes were

CATAPHRACTÆ NAVES, sh
...in fight, so that they co
...by the enemy. They
...boards or planks, on w
...placed to defend them; th
...beneath, thus screened fro

CATAPHRACTARII, or
...were a sort of cuira
...with armour themsel
...horses guarded with solid
...usually lined with s
...or other forms.
...was their unweildines
...they were una
...a prey to the enemy.

CATAPHRYGIANS, a sect i
...so called from being origi
...were orthodox in everyth
...Montanus for a proph
...Maximilla for true prophet
...in everything relating to
...the Holy Spirit had aband

CATAPLASM, n. A po
...application, to allay i
...suppuration.

CATAPUCE, n. French,
...two species of plants:
...the garden spurge, the
...the great; the latter

Chauce

CATAPULT, n. Lat. catap
...warlike engine,
...and more fully in t
...violently shot gr
...the catapulta.

...or CATAPULT
...arrows and dart

sometimes only the breast, sometimes the whole body, and sometimes the horse too, was covered. It was in use among the Sarmatians, Persians, and other barbarians. The Romans also adopted it early for their foot; and, according to Vegetius, kept it till the time of Gratian, when the military discipline growing remiss, the Roman foot thought the cataphracts as well as the helmet too great a load to bear, and therefore threw both by, choosing rather to march against the enemy bare-breasted: by which, in the wars with the Goths, multitudes were destroyed.

CATAPHRACTÆ NAVES, ships armed and covered in fight, so that they could not be easily damaged by the enemy. They were covered over with boards or planks, on which the soldiers were placed to defend them; the rowers sitting underneath, thus screened from the enemy's weapons.

CATAPHRACTARII, or CATAPHRACTI EQUITES, were a sort of cuirassiers, not only fortified with armour themselves, but having their horses guarded with solid plates of brass or other metals, usually lined with skins, and wrought into plumes, or other forms. But their disadvantage was their unweildiness, by which, if once unhorsed, they were unable to rise, and thus fell a prey to the enemy.

CATAPHRYGIANS, a sect in the second century, so called from being originally of Phrygia. They were orthodox in everything, except that they took Montanus for a prophet, and Priscilla and Maximilla for true prophetesses, to be consulted in everything relating to religion; as supposing the Holy Spirit had abandoned the church. See MONTANIST.

CATAPLASM, *n.* A poultice; a moist, emollient application, to allay inflammation, and forward suppuration.

> I bought an unction of a mountebank,
> So mortal, that but dip a knife in it,
> Where it draws blood, no *cataplasm* so rare,
> Collected from all simples that have virtue
> Under the moon, can save. *Shakspeare.*

> The eloquence of the declaration, not contradicting, but enforcing sentiments of the truest humanity; has left stings that have penetrated more than skin deep into my mind; and never can they be extracted by all the surgery of murder; never can the throbbings they have created be assuaged by all the emollient *cataplasms* of robbery and confiscation. *Burke.*

CATAPUCE, *n.* French, *catapuce*. An old name for two species of plants; the palma christi, and the garden spurge, the former of which was called the great; the latter, the less.

> A day or two ye shal han degestives
> Of wormes or ye take your laxatives,
> Of laureola, centauria, and fumetere,
> Or elles of ellebor that groweth there,
> Of *catapuce* or of gaitre beries,
> Or erbe ive growing in our yard that mery is.
> *Chaucer's Canterbury Tales.*

CATAPULT, *n.* Lat. *catapulta; καταπυλτης*. An ancient warlike engine, described in the quotation, and more fully in the next article.

> The balista violently shot great stones and quarries; as also the *catapults*. *Camden.*

CATAPULT, or CATAPULTA, was also used for throwing arrows and darts upon the enemy. Some of these engines were of such force that they would throw stones of a hundred weight. Josephus takes notice of the surprising effects of them, and says, that the stones thrown out of them beat down the battlements, knocked off the angles of the towers, and would level a whole file of men from one end to the other, were the phalanx ever so deep. The base is composed of two large beams, 2, 3. The length of those beams is fifteen diameters of the bore of the capitals, 9. At the two extremities of each beam, two double mortises are cut to receive the eight tenons of two cross beams, each of them four of the diameters in length. In the centre of each of the beams of the base, and near two-thirds of their length, a hole perfectly round, and nineteen inches in diameter, should be bored: these holes must be exactly opposite to each other, and should increase gradually to the inside of the beams, so that each of them, being sixteen inches on the outside towards the capitals, 9, should be seventeen and a half at the opening on the inside, and the edges carefully rounded off. The capitals, 9, are, in a manner, the soul of the machine, and serve to twist and strain the cordage, which forms its principle or power of motion. The capitals are of cast brass or iron; each consisting of a wheel with teeth, C 10, of two inches and a half thick. The hollow or bore of these wheels should be eleven inches and a quarter in diameter, perfectly round, and the edges smoothed down. As the friction would be too great, if the capitals rubbed against the beams, by the extreme straining of the cordage, which draws them towards these beams, that inconvenience is remedied by the means of eight friction wheels, or cylinders of brass, about the thirteenth of an inch in diameter, and an inch and one-sixth in length, placed circularly, and turning upon axes, as represented at D 13, B 12. One of these friction wheels at large with its screw, by which it is fastened into the beam, is represented at A. Upon this number of cylindrical wheels the capitals, 9, must be placed in the beams, 2, 3, so that the cylinders do not extend to the teeth of the wheels, which must receive a strong pinion 14. By means of this pinion, the wheel of the capital is made to turn for straining the cordage with the key 15. The capital wheel has a strong catch 16, and another of the same kind may be added to prevent anything from giving way through the extreme and violent force of the strained cordage. The capital piece of the machine is a nut or cross pin of iron, 17, seen at C, and hammered cold into its form. It divides the bore of the capitals exactly in two equal parts and is fixed in grooves about an inch deep. This piece, or nut, ought to be about two inches and one-third thick at the top, 18, as represented in the section at B; and rounded off and polished as much as possible, that the cords folded over it may not be hurt or cut by the roughness or edges of the iron. Its height ought to be eight inches, decreasing gradually in thickness to the bottom, where it ought to be only one inch. It must be very exactly inserted in the capitals. After placing the two capitals in the holes of the two beams, in a right line with each other, and fixing the two cross diametrical nuts, or pieces over which the cordage is to wind, one end of the cord is reeved through a hole in one of the capitals in the base, and made fast to a nail within the beam. The other side of the cord is then carried through the hole in the opposite beam and capital, and so wound over the cross pieces of iron in the centre of the two capitals till they are full, the cordage forming a large skain. The tension of the cordage ought to be exactly equal, that is, the several foldings of the cord over the capital pieces should be equally strained, and so near each other, as not to leave the least space between them. As soon as the first fold or skain of cord has filled up one whole space or breadth of the capital pieces, another must be carried over it; and so on, always equally straining the end till no more will pass through the capitals, and the skain of cordage entirely fills them, observing to rub it from time to time with soap. At three or four inches behind the cordage, thus wound over the capital piece, two very strong upright beams, 21, are raised; these are posts of oak fourteen inches thick, crossed over at top by another of the same solidity. The height of the upright beams is seven and a half diameters; each supported behind with very strong props, 25, fixed at bottom in the extremities of the base 2, 3. The cross beam 24 is supported in the same manner by a prop in the centre. The tree, arm, or stylus, 22, should be of sound ash. Its length is from fifteen to sixteen diameters of the bore of the capitals. The end of the bottom, or that fixed in the middle of the skain, is ten inches thick, and fourteen broad. To strengthen the arm or tree, it should be wrapt round with a cloth dipped in strong glue, like the tree of a saddle, and bound very hard with waxed thread, of the sixth of an inch in diameter from the large end at bottom almost to the top, as represented in the figure. At the top of the arm, just under the iron hand or receiver 27, a strong cord is fastened, with two loops twisted one within another, for the greater strength. Into these two loops the hook of a brass pulley 28 is put. The cord 29 is then reeved through the pulley, and fastened to the roll 30. The cock or trigger 31, which serves as a stay, is then brought to it, and made fast by its hook to the extremity of the hand, 27, in which the body to be discharged is placed. The pulley at the neck of the arm is then unhooked; and when the trigger is to let it off, a stroke must be given upon it with an iron bar or crow of about an inch in diameter; on which the arm flies up with a force almost equal to that of a modern mortar. The cushion or stomacher, 23, placed exactly in the middle of the cross beam 24, should be covered with a tanned ox hide, and stuffed with hair, the arm striking against it with inconceivable force. It is to be observed, that the tree or arm, 22, describes an angle of ninety degrees, beginning at the cock, and ending at the stomacher or cushion. Some of the spears, &c. thrown by these engines, are said to have been eighteen feet long, and to have been thrown with such velocity as to take fire in their course In fig. 2 A B C D is the frame that holds the darts or arrows, which may be of different numbers, and placed in different directions. E F is a large and strong iron spring, which is bent by a rope that goes over three pullies, I, K, L; and is drawn by one or several men; this rope may be fastened to a pin at M. The rope, therefore, being set at liberty, the spring must strike the darts with great violence, and send them, with surprising velocity, to a great distance. This instrument differs in some particulars from the description we have of that of the ancients; principally in the throwing of several darts at the same time, one only being thrown by theirs. See Balista.

CATARACT, n. Fr. *cataracte*; Lat. *cataracta*; *καταῤῥάκτη*. A fall of water from an elevation; a shoot of water; a cascade; but the latter word is now more commonly applied to minor or artificial cataracts. Cataract formerly meant also a flood gate, and a portcullis.

> Blow, winds, and crack your cheeks; rage, blow!
> You *cataracts* and hurricanoes, spout
> Till you have drenched our steeples. *Shakespeare.*

> What if all
> Her stores were opened, and the firmament
> Of hell should spout her *cataracts* of fire?
> Impendent horrors! *Paradise Lost.*

> Go, fool, and teach a *cataract* to creep!
> Can thirst of empire, vengeance, beauty, wait?
> *Young's Brothers.*

> Too charming visions of intense delight!
> Why? whither vanish ye? Her eagle flight
> Fancy renews; and full athwart mine eye
> Throws an enormous *cataract*:—from on high
> In awful stillness deepening waters glide
> E'en to the rude rocks ridge abrupt, then slide
> Ponderous down, down, the void, and pitch below
> In thunders. *Bishop.*

> Nymphs! you from cliff to cliff attendant guide
> In headlong *cataracts* the impetuous tide;
> Or lead o'er wastes of Abyssinian sands,
> The bright expanse to Egypt's showerless lands.
> *Darwin.*

> O paragon of cats, whose loss distracts
> My soul, and turns my tears to *cataracts*,
> Nor craft nor courage could thy doom prorogue.
> *Huddesford.*

Ca'taract, n. This word, in its medical sense of a disorder in the eye, has been derived from the same root as the former word. Cleland, however, and with apparent reason, contends that it is only a barbarous formation of the words cakoeroc or cacoeroco, still in use in the southern parts of France; the meaning of which is a speck, or any gathering over the eye.

> Saladine (celandine), hath a yellow milk, which hath likewise much acrimony; for it cleanseth the eyes: it is good also for *cataracts*. *Bacon.*

Cataract, in hydrography, is occasioned by a precipice in the channel of a river, caused by rocks or other obstacles, stopping the course of the stream, from whence the water falls with a greater noise and impetuosity. Such are the cataracts of the Nile, the Danube, Rhine, &c. In that of Niagara, the perpendicular fall of the water is 137 feet; and in that of Pistill Rhaiadr, in North Wales, the fall of water is nearly 240 feet from the mountain to the lower pool. Strabo calls that a cataract which we call a cascade; and what we call a cataract, the ancients usually called catadupa. Herminius has an express dissertation, De Admirandis Mundi Cataractis, Supra et Subterraneis: where he uses the word in a new sense; signifying, by cataract, any violent motion of the elements.

Cataract is defined a disorder of the humors of the eye, by which the pupil, that ought to appear transparent and black, looks opaque, blue, gray, brown, &c. whereby vision is variously impeded, or totally destroyed. See Surgery.

CATA'RRH, *n.*
Cata'rrhal, *adj.*
Cata'rrhous, *adj.*
Fr. *catarre;* old Fr. *catarrhe;* from καταῤῥέω, *defluo.* A defluxion of sharp serum from the glands about the head and throat; a species of that disorder which is familiarly termed a cold. See Medicine, Index. The adjectives signify that which relates to, or proceeds from, a catarrh.

All feverous kinds,
Convulsions, epilepsies, fierce *catarrhs.*
Paradise Lost.

Neither was the body then subject to die by piecemeal, and languish under coughs, *catarrhs,* or consumptions. *South.*

The *catarrhal* fever requires evacuations. *Floyer.*

Old age attended with a glutinous, cold, *catarrhous,* leucophlegmatick constitution. *Arbuthnot.*

Cat-grandams vexed with asthmas and *catarrhs,*
And superstitious cats who curse their stars.
Huddesford.

CATASTASIS, in poetry, the third part of the ancient drama; being that wherein the intrigue, or action, set forth in the epitasis, is supported, carried on, and heightened, till it be ripe for the unravelling in the catastrophe. Scaliger defines it, the full growth of the fable, while things are at a stand in that confusion to which the poet has brought them.

CATASTROMA, in ancient ships of war, a sort of scaffold on the head and stern, whereon the soldiers were posted.

CATA'STROPHE, *n.* Fr. *catastrophe;* καταστροφη. The unravelling of a plot; the winding up of a story or play; the issue or conclusion of an event; a fatal event; death.

Pat! he comes like the *catastrophe* of the old comedy. *Shakspeare.*

That philosopher declares for tragedies, whose *catastrophes* are unhappy, with relation to the principal characters. *Dennis.*

Here was a mighty revolution, the most horrible and portentous *catastrophe* that nature ever yet saw; an elegant and habitable earth quite shattered.
Woodward.

Cats of each class, craft, calling, and degree,
Mourn Dick's calamitous *catastrophe.* *Huddesford.*

Catastrophe, in the ancient dramatic poetry, the fourth and last part, or that immediately succeeding the catastasis: or, according to others, the third only; the whole drama being divided into protasis, epitasis, and catastrophe; or in the terms of Aristotle, prologue, epilogue, and exode. The catastrophe clears up everything, and is the discovery or winding up of the plot. It has its peculiar place: for it ought entirely to be contained, not only in the last act, but in the very conclusion of it; and when the plot is finished, the play should be so also.

CATAWESSY, or Hughesburg, a town of Pennsylvania, in Northumberland county, situated at the mouth of the Catawessy creek, on the east branch of the Susquehannah, twenty-five miles E.N.E. of Sunbury, and 100 north-west of Philadelphia.

CATCH, *v.* & *n.*
Ca'tchable, *adj.*
Ca'tcher, *n.*
Ca'tchpenny, *n.* & *adj.*
Ca'tchpole, *n.*
Ca'tchword, *n.*
This word has many claimants for its origin. Junius, in the most peremptory terms, refers it to the Greek: Κατεχειν (says he) quod detinere, obtinere, occupare, significat: mutuatur sua tempora ab inus. thema te Κατασχειν, unde *catch* contractum esse nemo non videt. Serenius, without any comment, points out to us, Su. *katza;* an instrument for catching fish. Minsheu resorts to Ital. *caccia; cacciare;* the chase; to hunt; aud Mr. Todd suggests, that the word may, perhaps, be derived from the substantive cat, as that creature seizes suddenly on its prey. The meanings of the verb and noun are numerous. The power of stopping that which is in motion, and of retaining after having stopped, is the primary idea. The verb, in its active sense, signifies to lay hold on with the hand; to stop anything in its flight; to seize by pursuing; to stop anything falling; to ensnare or entrap; to receive suddenly; to seize suddenly, eagerly, unexpectedly; to gain the affections; to charm; to receive any contagion or disease. Catching at, is a sudden endeavour to seize; catching up, is snatching; catching a Tartar, is to be taken at the moment when we are expecting to take. In the neuter sense the verb denotes, to be contagious; to lay hold suddenly. The noun is expressive of seizure; watching to seize; an advantage taken; quick taking; the thing caught; profit; advantage; a short interval of action; anything that catches; a small swift-sailing ship, often written ketch; and, lastly, a peculiar species of musical composition. Catchable is liable to be caught. A catchpenny is a worthless publication; whether it be a silly journey to the north, a novel, a lampoon, or a piece of doggrel. A catchpole is a serjeant; a bum-bailiff. A catchword is the last word at the corner of a page, under the last line.

And when he arose against me, I *caught* him by his beard, and smote him, and slew him.
1 *Sam.* xvii. 35.

And they sent unto him certain of the Pharisees and of the Herodians, to *catch* him in his words.
Mark, xii. 13.

The mule went under the thick boughs of a great oak, and his head *caught* hold of the oak.
2 *Sam.* xvii. 19.

To *catch* something out of his mouth that they might accuse him. *Luke,* xi. 54.

And in the meen whils that Beryn thus gan pleyn,
A *cachepoll* stode besides, his name was Machaign,
And herd all the wordes, and knew also tofore
How Beryn was tormented both with las and more.
Chaucer's Canterbury Tales.

Taught by his open eye,
His eye, that even did mark her trodden grass,
That she would fain the *catch* of Strephon fly.
Sidney.

I saw him run after a gilded butterfly, and, when he *caught* it, he let it go again; and after it again; and over and over he comes, and up again: and *caught* it again. *Shakspeare.*

I've perused her well;
Beauty and honour in her are so mingled,
That they have *caught* the king. *Id.*

Those measles,
Which we disdain should tetter us, yet seek
The very way to *catch* them. *Id.*

Saucy lictors
Will *catch at* us like strumpets, and scald rhimers
Ballad us out of tune. *Id.*

'Tis time to give them physic, their diseases
Are grown so *catching*. *Id.*

This is the tune of our *catch*, played by the picture of nobody. *Id.*

Here Hector shall have a great *catch*, if he knock out your brains; he were as good crack a fusty nut with no kernel. *Id.*

All which notions are but ignorant *catches* of a few things, which are most obvious to men's observations. *Bacon.*

Several quires, placed one over against another, and taking the voice by *catches* anthemwise, give great pleasure. *Id.*

Catchpoll, though now it be used as a word of contempt, yet, in ancient times, it seems to have been used without reproach, for such as we now call serjeants of the mace, or any other that uses to arrest men upon any cause. *Cowell.*

Here she comes, but with a look
Far more *catching* than my book. *Marvell.*

Scallops will move so strongly, as oftentimes to leap out of the *catcher*, wherein they are *caught*. *Grew.*

We retain a *catch* of those pretty stories, and our awakened imagination smiles in the recollection. *Glanville.*

The curling smoke mounts heavy from the fires,
At length it *catches* flame, and in a blaze expires. *Dryden.*

For I am young, a novice in the trade,
The fool of love, unpractised to persuade,
And want the soothing arts that *catch* the fair,
But *caught* myself, lie struggling in the snare. *Id.*

Fate of empires, and the fall of kings,
Should turn on flying hours and *catch* of moments. *Id.*

These artificial methods of reasoning are more adapted to *catch* and entangle the mind, than to instruct and inform the understanding. *Locke.*

It has been writ by *catches*, with many intervals. *Id.*

Others, to *catch* the breeze of breathing air,
To Tusculum or Algido repair. *Addison.*

Both of them lay upon the *catch* for a great action. *Id.*

Or call the winds through long arcades to roar,
Proud to *catch* cold at a Venetian door. *Pope.*

A shepherd diverted himself with tossing up eggs, and *catching* them again. *Spectator.*

The eagerness of a knave makes him often as *catchable*, as the ignorance of a fool. *Lord Halifax.*

Another monster,
Sullen of aspect, by the vulgar called
A *catchpoll*, whose polluted hands the gods
With force incredible and magic charms
Erst have endued, if he his ample palm
Should haply on ill-fated shoulder lay
Of debtor. *Philips.*

Sonnets or elegies to Chloris
Might raise a house about two stories;
A lyric ode would slate; a *catch*
Would tile; an epigram would thatch. *Swift.*

Now twenty springs had clothed the park with green
Since Lydia knew the blossoms of fifteen,
No lovers now her morning hours molest,
And *catch* her at her toilette half undrest. *Gay.*

When poor Alicia's maddening brains are racked,
And strongly imaged griefs her mind distract,—
Struck with her grief, I *catch* the madness too!
My brain turns round, the headless trunk I view. *Churchill.*

Hear, thou, of heaven unconscious! From the blaze
Of glory stream'd from Jove's eternal throne
Thy soul, O mortal, *caught* the inspiring rays
That to a god exalt earth's raptured son. *Beattie.*

CATCH, in the musical sense of the word, a fugue in the unison, wherein, to humor some conceit in the words, the melody is broken, and the sense interrupted in one part, and caught again or supported by another. Mr. Jackson defines a catch, 'a piece for three or more voices, one of which leads, and the others follow in the same notes. It must be so contrived, that rests (which are made for that purpose) in the music of one line be filled up with a word or two from another line; these form a cross purpose, or catch, from whence the name.

CATCHFLY. See LYCHNIS and SILENE.

CATECHESIS, an instruction given any person in the first rudiments of an art or science; but more particularly of the Christian religion. In the ancient church it was an instruction given *vivâ voce*, either to children or adult heathens, preparatory to their receiving baptism.

CA'TECHISE, *v.*
CATECHISA'TION, *n.*
CA'TECHISER, *n.*
CA'TECHISING, *n.*
CA'TECHISM, *n.*
CA'TECHIST, *n.*
CATECHI'STICAL, *adj.*
CATECHI'STICALLY, *adv.*
CATECHE'TICAL, *adj.*
CATECHE'TICALLY, *adv.*
CATECHE'TICK, *adj.*
CATECHU'MEN, *n.*
CATECHUME'NICAL, *adj.*
CATECHU'MENIST, *n.*

Κατηχέω. The root of this word is Ηχως, *echo*, *sonus*, *repetitio*; because in catechising the thing is repeated, resounded. To catechise is to instruct by asking questions, and correcting the answers; to question; to interrogate. Catechism, in its oldest sense, denotes a form of religious instruction, by question and answer; but it is now applied to books written in the interrogative manner, upon any subject. Catechist and catechiser are synonymous, and signify the person who interrogates. Catechising and catechisation are also equivalent terms, to express the act of interrogation. That which consists of, or instructs by, questions and answers, is described by the adjectives catechetic, catechetical, and catechistical. Catechumen, and catechumenist (the latter word is of rare occurrence), signify one who has not yet gone beyond the first rudiments of Christianity; the lowest order of Christians in the primitive church. See CATECHUMENS.

I will *catechise* the world for him, that is, make questions, and bid them answer. *Shakspeare.*

Why, then, I suck my teeth, and *catechise*
My piked man of countries. *Id.*

Ways of teaching there have been sundry always usual in God's church, for the first introduction of youth to the knowledge of God, the Jews even to this day have their *catechisms*. *Hooker.*

Hark you, good Maria,
Have you got a good *catechiser* here?
Beaumont and Fletcher.

None of years and knowledge was admitted, who had not been instructed by the *catechist* in this foundation, which the *catechist* received from the bishop. *Hammond.*

He had no *catechism* but the creation, needed no study but reflection, and read no book but the volume of the world. *South.*

Could turn the Covenant, and translate
The Gospel into spoons and plate;
Expound upon all merchants' cases,
And open the intricatest places;
Could *catechise* a money-box,
And prove all pouches orthodox. *Butler.*

The prayers of the church did not begin in St. Austin's time, till the *catechumens* were dismissed. *Stillingfleet.*

Socrates introduced a *catechetical* method of arguing; he would ask his adversary question upon question, till he convinced him, out of his own mouth, that his opinions were wrong. *Spectator.*

There flies about a strange report,
Of some express arrived at court,
I'm stopped by all the fools I meet,
And *catechised* in every street. *Swift.*

Catechism, in its primary sense, signifies an instruction in the principles of the Christian religion, delivered vivâ voce, so as to require frequent repetitions from the disciple or hearer. Anciently the candidates for baptism were thus instructed in the principles of religion.

Catechist denotes a person appointed to instruct those intended for baptism, by word of mouth, in the fundamental articles of Christianity. The catechists of the ancient churches were ministers usually distinct from the bishops and presbyters, and had their catechumena or auditories apart. But they did not constitute any distinct order of the clergy, being chosen out of any order. The bishop himself sometimes performed the office; at other times presbyters, readers, or deacons. Origen was made catechist at Alexandria when only eighteen years of age, and consequently incapable of the deaconship.

CATECHU, in botany. See Mimosa.

Catechumens, in church history, had a title to the common name of Christians, being a degree above pagans and heretics, though not consummated by baptism. They were admitted to this state by the imposition of hands, and the sign of the cross. The children of believing parents were admitted catechumens as soon as they were capable of instruction; but at what age those of heathen parents were admitted is not so clear. As to the time of their continuance in this state, there were no general rules; but the practice varied according to the difference of times and places, and the proficiency of the catechumens. There were four degrees of catechumens; the first were those instructed privately without the church, and kept for some time from the privilege of entering it, to make them the more desirous of it. The next were the audientes, so called from their being admitted to hear sermons, and the Scriptures read in the church, but not allowed to partake of the prayers. The third were the genuflectentes, so called because they received imposition of hands kneeling. The fourth were the competentes and electi, denoting the immediate candidates for baptism, appointed to be baptised at next festival. These, after examination, were exercised for twenty days together, and were obliged to fasting and confession. some days before baptism they were veiled; and it became customary to touch their ears, saying, 'Ephatha,' i. e. be opened; also to anoint their eyes with clay, in pretence of imitating our Saviour's practice.

CATECHUMENUM; 1. A name given to an upper gallery in the churches: 2. A sort of school-house near the church, where the catechumens met to receive the instructions of the catechists.

CATEGAT, sometimes called the Sound, an entrance into the Baltic from the German Ocean, running between Denmark, Jutland, Sweden, and Norway.

CATEGORIARES, a minister in the Greek church, whose business is to proclaim the feast-days, take care of the lights, &c.

CATEGORY, *n.*
Catego'rical, *adj.*
Catego'rically, *adv.*
} Κατηγορία; the root is by some supposed to be Αγορα, *forum*, the bar; an harangue; others find it in κατα and ἀγείρω, *congrego*, *colligo*, which seems to be the most rational opinion. A category is a class; rank; order of ideas; predicament. See the next article. Categorical denotes absolute; adequate; positive; equal to the thing to be expressed. Categorically is directly; expressly; positively; plainly. Give me a categorical answer, or, answer me categorically, means, give me a plain, full, and final answer.

The king's commissioners desired to know, whether the parliament's commissioners did believe that bishops were unlawful? They could never obtain a *categorical* answer. *Clarendon.*

I dare affirm, and that *categorically*, in all parts wherever trade is great, and continues so, that trade must be nationally profitable. *Child.*

The absolute infinitude, in a manner, quite changes the nature of beings, and exalts them into a different *category*. *Cheyne.*

A single proposition, which is also *categorical*, may be divided again into simple and complex. *Watts.*

— Prudes, who when they're asked the question,
squall,
And ne'er give answer *categorical*. *Huddesford.*

Category, in logic, a series of all the attributes contained under any genus. The ancient philosophers distributed all the objects of our thoughts and ideas into certain genera or classes, not so much, say they, to learn what they do not know, as to communicate a distinct notion of what they do know. These classes the Greeks called categories, and the Latins predicaments. Aristotle made ten categories, comprehending under the first all substantives; and all accidents under the nine last, viz. quantity, quality, relation, action, passion, time, place, situation, and habit, which are usually expressed by the following technical distich:

Arbor, sex, servos, ardore, refrigerat, ustos,
Rure cras stabo, nec tunicatus ero.

CATEIA, in ancient writers, a kind of javelin, used among the ancient Gauls and Germans, made heavy, and therefore not fitted to fly far, but doing great execution where it did reach; and having an apparatus by which the person who threw it might draw it back again. It is mentioned by Virgil, Æn. lib. vii. ver. 741.

CATENARY, in the higher geometry, is a curve line formed by a cord hanging freely from two points of suspension, whether the points be horizontal or not. It is otherwise called the elastic curve. The nature of this curve was sought after by Galileo, who thought it was the same with the parabola; but though Jungius detected this mistake, its true nature was not discovered till 1691, in consequence of M. John Bernouilli having published it as a problem in the Acta Eruditorum, to the mathematicians in Europe. In 1697 Dr. D. Gregory published an investigation of its properties, which before had been discovered by Bernouilli and Leibnitz. This curve is of the mechanical kind, and cannot be expressed by a finite algebraical equation in simple terms of its abciss and ordinate. The investigation of the nature and chief properties of this curve will be found under the article FLUXIONS.

CA'TENATE, *v.*
CATENA'RIAN, *adj.*
CATENA'TION, *n.*

Lat. *catena*. To catenate is to chain; to link together, either mentally or physically. The noun signifies link; regular connexion; the adjective, having a relation or resemblance to a chain; but it is rarely, if ever, used, except as descriptive of a peculiar geometrical curve. See the preceding article.

This *catenation* or conserving union, whenever his pleasure shall divide, let go, or separate, they shall fall from their existence. *Browne.*

In geometry, the *catenarian* curve is formed by a rope or chain hanging freely between two points of suspension. *Harris.*

The back is bent after the manner of the *catenarian* curve, by which it obtains that curvature that is safest for the included marrow. *Cheyne.*

CA'TER, *v.* & *n.*
CATE, *n.*
CA'TERER, *n.*
CA'TERESS, *n.*
CA'TERY, *n.*

Fr. *queter*; It. *accatare*; Sp. *catar*; Ger. *kaufen*; Ang.-Sax. ceapian; aceapian; Goth. *kates*. The noun cate, which Dr. Johnson erroneously represents as having no plural, Skinner conjectures to be a contraction of the word delicates. But Mr. Todd more happily considers it it as a variation of the antiquated English word acates, which he derives from the old Fr. acat, achat, purchase. Both the English words however, are probably from the Goth. Cates, are viands, food; and almost uniformly denote something more delicate than usual. To cater is to provide victuals; the cater, caterer, or cateress, is the provider; and catery was formerly a name of the larder or pantry. The four of cards and dice is called cater; but this is a corruption of the Fr. quatre.

The dearest *cates* are best; and 'tis an ordinary thing to bestow twenty or thirty pounds on a dish, some thousand crowns upon a dinner. *Burton. Anat. Mel.*

Well, say what *cates* you have,
For soldiers' stomachs always serve them well.
Shakspeare.

He that doth the ravens feed,
Yea providently *caters* for the sparrow.
Be comfort to my age. *Id.*

The fair acceptance, sir, creates
The entertainment perfect, not the *cates*.
B. Jonson.

O wasteful riot, never well content,
With low-prized fare; hunger ambitious
Of *cates*, by land and sea far-fetched and sent.
Raleigh.

The oysters dredged in this Lyner, find a welcomer acceptance, where the taste is *cater* for the stomach, than those of the Tamar. *Carew's Cornwall.*

He made the greedy ravens to be Elias's *caterers*, and bring him food. *King Charles.*

Impostor! do not charge most innocent nature,
As if she would her children should be riotous
With her abundance: she, good *cateress*,
Means her provision only to the good. *Milton.*

Alas! how simple to these *cates*,
Was that crude apple that diverted Eve! *Id.*

Seldom shall one see in cities and courts that athletic vigour, which is seen in poor houses, where nature is their cook, and necessity their *caterer*. *South.*

They, by the alluring odour drawn, in haste
Fly to the dulcet *cates*, and crowding sip
Their palatable bane. *Philips.*

Near him Retirement, pointing to the shade,
And Independence, stood: the generous pair
That simple life, the quiet-whispering grove,
And the still raptures of the free-born soul,
To *cates* prefer by virtue bought, not earned.
Thomson.

Fastidious cats who pine for costly *cates*.
Huddesford.

CA'TER-COUSIN, a corruption of quatre-cousin; from the ridiculousness of claiming affinity with so remote a degree.

His master and he, saving your worship's reverence, are scarce *cater-cousins*. *Shakespeare.*

CA'TERPILLAR. 'This word,' says Johnson, 'Skinner, and Minsheu are inclined to derive from chatte peleuse, a weasel. It seems easily deducible from *cates*, food; and *piller*, Fr. to rob; the animal that eats up the fruits of the earth.' It appears evident either that there is a typographical error in the dictionary of the great lexicographer, or that he has overlooked the real meaning of Skinner and Minsheu, which seems simply to be that the insect is hairy like a cat. That 'weasel' is a press error, is rendered almost certain by the fact that chatte peleuse never designated that animal, but has always been an appellation of the weevil. The caterpillar is a well-known insect, which is a potent destroyer of vegetation. The name is given to anything that is voracious and useless.

The *caterpillar* breedeth of dew and leaves; for we see infinite *caterpillars* breed upon trees and hedges, by which the leaves of the trees or hedges are consumed. *Bacon.*

Auster is drawn with a pot pouring forth water with which descend grasshoppers, *caterpillars*, and creatures bred by moisture. *Peacham.*

And what's a butterfly at best,
He's but a *caterpillar* drest;
And all thy race (a numerous seed)
Shall prove of *caterpillar* breed. *Gay.*

CATERPILLAR, in zoology, is the name of all winged insects, while in their reptile or worm state

CATESBÆA, the lily-thorn: a genus of the monogynia order, and tetandria class of plants; natural order twenty-eighth, luridæ: cor. is monopetalous, funnel-shaped, very long above the receptacle of the fruit; the stam. are within its throat; the fruit a polyspermous berry. There are two species; the principal is C. spinosa, a native of the island of Providence.

CATFISH, *n.* The name of a sea-fish in the West Indies, so named from its round head and large glaring eyes, by which they are discovered in hollow rocks. See Squalus.

CATGUT, a denomination given to small strings for fiddles, and other instruments, made of the intestines of sheep or lambs, dried and twisted together, either singly, or several together. These are sometimes colored red, sometimes blue, but are commonly left whitish or brownish, the natural color of the gut. They are also used by watch-makers, cutlers, turners, and other artificers. Great quantities are imported into England, and other countries, from Lyons and Italy.

CATHARINE (St.), a virgin of Alexandria, celebrated for her learning as well as piety, who is said to have suffered martyrdom under the emperor Maximin, about A. D. 236. Her body being afterwards discovered on Mount Sinai, gave rise to the order of Knights of St. Catharine. There are also two other saints of this name; but their history will be more fit for the pages of a Romish calendar than for those of an encyclopædia.

Catharine (St.), Fraternity of, at Sienna, a religious society instituted in that city, in honor of St. Catharine, whose wedding ring, said to have been presented to her by our Saviour, is still preserved as a valuable relic. This fraternity yearly endows a certain number of destitute virgins, and has the privilege of redeeming annually two criminals condemned for murder, and the same number of debtors, by paying their debts.

Catharine (St.), of Mount Sinai, Knights of, an ancient military order, erected for the assistance and protection of the numerous pilgrims who went to pay their devotions to the body of St. Catharine, on mount Sinai. Travelling being very dangerous, by reason of the Arabs, an order of knighthood was erected in 1063, on the model of that of the holy sepulchre, and under the patronage of St. Catharine: the knights of which obliged themselves by oath to guard the body of the saint, keep the roads secure, observe the rule of St. Basil, and obey their grand master. Their habit was white, and on it were represented the instruments of martyrdom whereby the saint had suffered; viz. a half wheel armed with spikes, and traversed with a sword stained with blood.

Catharine (St.), Order of, an order of ladies of the first quality in the Russian court, instituted in 1714, by Catherine, wife of Peter the Great, in memory of his signal escape from the Turks, in 1711. The ensigns of this order are a red cross, supported by a figure of St. Catharine, and fastened to a scarlet string edged with silver, on which are inscribed the name of St. Catharine, and the motto 'Pro fide et patria.'

CATHARINENSTADT, the head of the German colonies on the Wolga in European Russia, government of Saratov. It contains one long street, with eight smaller ones running off at right angles, and a small fortress to protect it against the attacks of the Tartars. Grain, tobacco, and cattle are the productions of the neighbourhood.

CAT-HARPINGS, *n.* Small ropes in a ship, running in little blocks from one side of the shrouds to the other, near the deck; they belong only to the main shrouds; and their use is to force the main shrouds tight, for the ease and safety of the masts, when the ship rolls.

CATHA'RTICAL, *adj.*
Catha'rtic, *adj.*
Catha'rticalness.

Καθαρτικὸς, from κατα and αἴρω, *tollo*. Purging medicines; purging; having a purging quality. The vermicular or peristaltick motion of the gut, says Quincy, continually helps on their contents from the pylorus to the rectum; and every irritation either quickens that motion in its natural order, or occasions some little inversions in it. In both, what but slightly adheres to the coats will be loosened, and they will be more agitated and thus rendered more fluid. By this only it is manifest, how a *cathartic* hastens and increases the discharges by stool; but where the force of the stimulus is great, all the appendages of the bowels, and all the viscera in the abdomen, will be twitched; by which a great deal will be drained back into the intestines, and made a part of what they discharge.

Quicksilver precipitated either with gold, or without addition, into a powder, is wont to be strongly enough *cathartical*. *Boyle.*

Lustrations and *cathorticks* of the mind were sought for, and all endeavour used to calm and regulate the fury of the passions. *Decay of Piety.*

The piercing causticks ply their spiteful power,
Emeticks ranch, and keen *catharticks* scour. *Garth.*

Plato has called mathematical demonstrations the *catharticks* or purgatives of the soul.
Addison's Spectator.

Cathartics. See Materia Medica.

CA'THEAD, *n.*, a kind of fossil.

The nodules with leaves in them, called *catheads*, seem to consist of a sort of iron stone, not unlike that which is found in the rocks near Whitehaven in Cumberland, where they call them catscaups.
Woodward on Fossils.

Cat-heads, two strong short beams of timber, which project almost horizontally over the ship's bows on each side of the bowsprit; being like two radii which extend from a centre taken in the direction of the bowsprit. That part of the cat-head which rests upon the forecastle, is securely bolted to the beams: the other part projects like a crane as above described, and carries in its extremity two or three small wheels or sheaves of brass or strong wood, about which a rope called the cat-fall passes, and communicates with the cat-block, which also contains three sheaves. The machine formed by this combination of pullies is called the cat, which serves to pull the anchor up to the cat-head, without tearing the ship's sides with its flukes. The cat-head also serves to suspend the anchor clear of the bow, when it is necessary to let it go: it is supported by a sort of knee, which is generally ornamented with sculpture. The cat block is filled with a large and strong hood, which catches the ring of the anchor when it is to be drawn up.

CATHEDRA, Καθηδρα, Gr. a chair, is used for, 1. a professor's chair; 2. a preacher's pulpit; and 3. a bishop's see, or throne, in a church.

CATHE'DRAL, *n* & *adj.* } Καθεδρα, a seat,
CATHE'DRATED, *adj.* } or chair, from κατα and εδρα, a seat. The noun signifies the head church of a diocese. The adjective denotes episcopal; containing a bishop's see; appertaining to an episcopal church; and, adds Johnson, though doubtingly, 'in low phrase, antique, venerable, old.' He gives the subjoined quotation from Pope, as illustrative of this sense of the word. But it seems probable that Pope had no such meaning. He is describing long alleys of trees, and apparently alludes to the resemblance which their tall equidistant trunks and overarching branches bear to the aisles of a Gothic cathedral. His friend Warburton considers Gothic architecture as having originated in an imitation of a grove of trees. Cathedrated denotes relating to the chair, or authority, of a teacher; but is obsolete.

A *cathedral* church is that wherein there are two or more persons, with a bishop at the head of them, that do make, as it were, one body politick. *Ayliffe's Parergon.*

Methought I sat in seat of majesty,
In the *cathedral* church of Westminster. *Shakspeare.*

Nature in vain us in one land compiles,
If the *cathedral* still shall have its aisles. *Marvell.*

If his reproof be private or with the *cathedrated* authority of a prælecter or publick reader. *Whitlock.*

His constant and regular assisting at the *cathedral* service was never interrupted by the sharpness of weather. *Locke.*

Here aged trees *cathedral* walks compose,
And mount the hill in venerable rows;
There the green infants in their beds are laid. *Pope.*

There is nothing in Leghorn so extraordinary as the *cathedral*, which a man may view with pleasure after he has seen St. Peter's. *Addison.*

Who can forsake thy walls and not admire
The proud *cathedral* and the lofty spire. *Gay.*

CATHEDRAL. The name seems to have taken its rise from the manner of sitting in the ancient churches, or assemblies of primitive Christians. In these, the presbyterium; at their head was the bishop who held the place of chairman, cathedralis, or cathedraticus; and the presbyters, who sat on either side also called by the ancient fathers, assessores episcoporum. The episcopal authority did not reside in the bishop alone; but in all the presbyters, whereof the bishop was president. A cathedral, therefore, originally was different from what it is now; the Christians, till the time of Constantine, having no liberty to build any temple; by their churches they only meant their assemblies; and, by cathedrals, nothing more than consistories.

CATHERINE I. empress of Russia, a woman who rose from the lowest to the highest rank in life, was the natural daughter of a peasant, and born at Ringen, a small village in Livonia, April the 5th, 1687. Her original name was Martha, which she changed for Catherine when she embraced the Greek religion. Count Rosen, a lieutenant-colonel in the Swedish service, the proprietor of the village, supported, according to the custom of the country, both the mother and the child; and was supposed by many to have been her father. She lost her mother when she was only three years old; and, as the count died about the same time, she was left in so destitute a situation, that the parish-clerk of the village took her into his house. Soon afterwards, M. Gluck, Lutheran minister of Marienburgh, took her under his protection, brought her up in his family, and employed her in attending his children. In 1701, about the fourteenth year of her age, she espoused a dragoon of the Swedish garrison of Marienburgh: who, according to some writers, lived only eight days with her. It is certain that he was absent when Marienburgh surrendered to the Russians; and Catherine never saw him more. General Baur, upon the surrender of Marienburgh, being smitten with her beauty, took the young bride to his house, where she superintended his domestic affairs, and was supposed to be his mistress. Soon afterwards she was removed into the family of prince Menzikof, who was no less struck with her charms. With him she lived until 1704; when, in the seventeenth year of her age, she became the mistress of Peter the Great, and won so much upon his affections, that he espoused her on the 29th of May, 1711, at Jawerof in Poland; and on the 20th of February, 1712, the marriage was publicly solemnised at Petersburg. Catherine, by the most unwearied assiduity and unremitted attention, by the softness and complacency of her disposition, but above all by an extraordinary liveliness and gaiety of temper, acquired a wonderful ascendancy over the mind of the czar; and the emperor particularly specified her behaviour at Pruth, in which she alone prevailed with him to sign a truce, as one of the reasons which induced him to crown her publicly at Moscow with his own hand. This ceremony was performed in 1724. On the death of Peter in 1725 she ascended the throne as his successor. Her favorite, prince Menzikof, chiefly managed the public affairs during her short reign, which terminated by her death in a fit of apoplexy, May, 1727. The empress Elizabeth, who afterwards succeeded to the throne, was one of her daughters by Peter I.

CATHERINE II. of Russia, a queen who doubless has a claim to be ranked among the great sovereigns of Europe, according to the usual acceptation of the word greatness, was the daughter of Christian Augustus, prince of Anhalt-Zerbst. She was born, May the 2d, 1729, and baptised Sophia Augusta; but, upon her marriage with the grand duke of Russia, September the 1st, 1745, and admission into the Greek church, she assumed the name of Catherine. Her husband, Peter III. succeeded his aunt Elizabeth, January the 5th, 1762, but had not reigned six months, when he fell a sacrifice to his wife's ambition; being deposed on the 28th of June, and barbarously murdered on the 9th of July following. Upon the deposition of her unfortunate husband, Catherine II. was proclaimed empress of all the Russias; and soon after endeavoured to conceal the crimes by which she ascended the throne, by the dazzling lustre of some of those actions which have blotted the

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page of history with blood in all ages of the world, and have too long employed the pens of historians and poets. The history of these transactions will be found under the article Russia; but future historians will decide, whether the great exploits, displayed during her reign, are not more to be ascribed to the natural strength of the empire, the force of which it was her business to collect and concentrate, than to any superior personal genius which she possessed. As to the justice of these exploits, it need hardly be left to posterity to judge. Without entering into the merits of her claims upon the Turkish dominions, her invasion and partition of Poland, in conjunction with other powers, particularly the king of Prussia, affords as flagrant an instance of the violation of the rights of nations, by open and unprovoked robbery and murder, as is to be found in the annals of the most barbarous savages. In short, the chief merit of Catherine, as a sovereign, seems like that of queen Elizabeth of England, to have consisted in selecting able ministers, admirals, and generals, to carry on the operations she had planned. In this respect, even her vices as a woman, which gave her the ascendant of an imperious character over her favorites, exempt from the weakness of sentiment, supplied the place of public virtues; and banished from her government the degrading influence, which courtiers elsewhere often exercise. She at last, however, allowed herself to be ruled by her freed man, Sabor, who deceived her with regard to the state of her forces, which did not amount to 200,000 men, though her military lists contained 400,000: and her long preparations for the field terminated in a disastrous war in Persia, by which two of her armies were consumed. If her policy in relation to Austria and Poland was attended with success, it is, perhaps, less to be ascribed to her interference, than to the good sense she displayed in allowing her ministers to govern. Yet this policy was over-reached in her last war against the Turks, when, in spite of pompous promises, assisting Austria only with feeble succours, and suddenly finding her squadrons held bound by those of Sweden, she left to her rival all the advantages of many bloody campaigns; and excited in the grand seignior a desire of vengeance, which he was not long in inflicting. Nor were her plans of political aggrandisement free from fluctuations and contradictions. During the American war, one would have imagined that the trident of Neptune was, by her exertions, about to become the sacred symbol of liberty. She presented to the courts of Versailles, Madrid, and London, a memorial, in which she demanded, that the commerce of all nations, even of the belligerent powers, should be free and respected. She proposed that a league should be formed for its support, and for this purpose deputed prince Gallitzin to the States General. But, in 1793, she avowed principles directly opposite. Influenced solely by her rage against France, she announced war against that republic, without discussion, without manifesto, without even being able to allege, with regard to a state so remote from her territories, that barbarous maxim, which has slipped from the pen of Montesquieu himself;—'that the law of natural defence sometimes involves the necessity of attack, when a people sees, that a longer peace would enable another power to effect their destruction.' Esprit de Loix, L. 10. c. 2. With all her foibles, however, Catherine had some right to the panegyrics of men of letters. She purchased the praises of several French philosophers, and she did not overlook the merits of various British authors. After the example of some of the tyrants of antiquity, she renewed the singularity of royal and philosophic banquets. Like Dionysius, Pisistratus, and Hiero, she collected Platos, Aristippi, and Pindars at her suppers. The imperial resentment, however, was sometimes excited; on which occasions the wit was rewarded with banishment; a premium which Diderot received for his frankness. The compliment she paid to the rhetorical merits of Mr. Fox, by requesting his bust, and placing it between those of Cicero and Demosthenes in her library, for his having prevented the threatened rupture between Great Britain and Russia, reflects honor on her memory, as well as on that of the orator. Her purchasing the libraries, letters, and papers of Messrs. Voltaire and D'Alembert also evidenced her literary taste; unless, as a French writer suspects, she did it with a view to bury the relics of these great men. This extraordinary woman died suddenly and unseen, in her water-closet, on the 17th of November, 1796, in the sixty-seventh year of her age.

Ca'therine Pear. See Pyrus.

For streaks of red were mingled there,
Such as are on a Catherine pear,
The side that 's next the sun. — *Suckling.*

CATHERINEBERG, a town of Sweden, in the province of West Gothland. It is the birth-place of the celebrated chemist, Sir Torbern Bergman.

CATHETER. *n. s.* καθετηρ, from καθιημι, I let down into. A hollow and somewhat crooked instrument, to thrust into the bladder, to assist in bringing away the urine, when the passage is stopped by a stone or gravel.

A large clyster, suddenly injected, hath frequently forced the urine out of the bladder; but if it fail, a *catheter* must help you. — *Wiseman's Surgery.*

CATHETOLIPES, in natural history, the name of a genus of fossils of the class of the selenitæ, but differing from the common kinds, in the constituent plates being ranged perpendicularly, and not horizontally on each other.

CATHETUS, in architecture, a perpendicular line, supposed to pass through the middle of a cylindrical body, as a baluster, column, &c.

Cathetus, in geometry, a line or radius falling perpendicularly on another line or surface; thus the catheti of a right-angled triangle, are the two sides that include the right angle.

CATHO'LICISE, or
Ca'tholise, *s.*
Ca'tholick, *n.* & *adj.*
Ca'tholickly,
Ca'tholickness, *n.*
Catho'lical, *adj.*
Catho'licism, *n.*

Fr. *catholique*, Ital. *cattolico*; Sp. *catolico*; Gr. καθολικος, from ολος, universal, the whole, all; thence applied to the whole Christian church.—The verb is not in use. Cotgrave and Sherwood define it 'to catholikize it, play the catholicke, become a catholicke.' Catholicism is adherence to the Catholic church; orthodox faith; catholickly is generally; catholickness; universality.

The church of Jesus Christ is called catholic, because it extends throughout the whole world, and is not limited by time. Some truths are said to be catholic because they are received by all the faithful. Catholic is often set in opposition to heretic or sectary, and to schismatic. Catholic or canonical epistles, are seven in number; that of St. James, two of St. Peter, three of St. John, and that of St. Jude. They are called catholic, because they are directed to all the faithful, and not to any particular church; and canonical, because they contain excellent rules of faith and morality.

> Doubtless the success of those your great and *catholick* endeavours will promote the empire of man over nature, and bring plentiful accession of glory to your nation. *Glanville's Scepsis.*

> All pope's believers think something divine,
> When images speak, possesseth the shrine;
> But they who faith *catholick* ne'er understood,
> When shrines give an answer, a knave's on the rood.
> *Marvell.*

> Those systems undertake to give an account of the formation of the universe, by mechanical hypotheses of matter, moved either uncertainly, or according to some *catholick* laws. *Ray.*

Catholic Church. The rise of heresies induced the primitive Christian church to assume to itself the appellation of catholic, being a characteristic to distinguish itself from all sects, who, though they had party names, sometimes sheltered themselves under the name of Christians. The Romish church now distinguishes itself by the name of catholic, in opposition to all who have separated from her communion, and whom she considers as heretics and schismatics, and herself only as the true and Christian church. In the strict sense of the word, there is no catholic church in being, that is, no universal Christian communion. We shall treat of the existing state of the Roman Catholic church under that more appropriate title.

Catholic King is a title which has been long hereditary to the king of Spain. Mariana pretends, that Recarede first received this title after he had destroyed Arianism in his kingdom, and that it is found in the council of Toledo for the year 589. Vasce ascribes the origin of it to Alphonsus I. in 738. Some allege that it has been used only since the time of Ferdinand and Isabella. Colombiere says, it was given them on occasion of the expulsion of the Moors. The Bollandists pretend it had been borne by their predecessors the Visigoth kings of Spain; and that Alexander VI. only renewed it to Ferdinand and Isabella. Others say, that Philip of Valois first bore the title; which was given him after his death by the ecclesiastics, on account of his favoring their interests. In some epistles of the ancient popes, the title catholic is given to the kings of France and of Jerusalem, as well as to several patriarchs and primates.

CATHO'LICON, *n. s.* from catholic; *καθολικον ιαμα*; a universal medicine.

> Preservation against that sin, is the contemplation of the last judgment. This is indeed a *catholicon* against all; but we find it particularly applied by St. Paul to judging and despising our brethren. *Government of the Tongue.*

> Here the great masters of the healing art,
> These mighty mock-defrauders of the tomb,
> Spite of their juleps and *catholicon*,
> Resign to fate! *Blair's Grave.*

CA'TILINISM, *n.* from Catiline; a conspiracy.

CATILINE (Lucius Sergius), a Roman of a patrician family, who, having spent his fortune in debauchery, formed the design of destroying the senate, seizing the public treasury, setting Rome on fire, and usurping a sovereign power over his fellow citizens. He drew some young noblemen into his plot; whom he prevailed upon, it is said, to drink human blood as a pledge of their union. His conspiracy, however, was discovered by the vigilance of Cicero, who was then consul. Upon which, retiring from Rome, he put himself at the head of an army, with several of the conspirators, and fought with incredible valor against Petreius, lieutenant to Anthony, who was colleague with Cicero in the consulship; but was defeated and killed in battle. See Rome. Sallust has given an excellent history of this conspiracy.

CATO (Marcus Porcius), Major, the censor, one of the greatest men among the ancients, was born at Tusculum, A.U.C. 519, and A.A.C. 232. He began to bear arms at seventeen; and, on all occasions, showed extraordinary courage and great sobriety; considering no bodily exercise unworthy of him. He had but one horse for himself and his baggage, and he always groomed it. At his return from his first campaign, he plowed his own ground, though he had slaves to do it. He dressed also like his slaves, sat at the same table with them, and partook of the same fare. He employed his rhetorical talents in pleading causes in the neigbouring cities without fee or reward. Valerius Flaccus, who had a country seat near Cato, conceiving an esteem for him, persuaded him to come to Rome; and here, by his own merit, and the influence of so powerful a patron, he was soon noticed. He was first elected tribune of the soldiers for Sicily. Next he was made questor in Africa under Scipio, whom he reproved for his profuseness to his soldiers. Being afterwards prætor, he fulfilled the duties of that office with the strictest justice. He conquered Sardinia, governed it with admirable moderation, and was elected consul. Being tribune in the Syrian war, he gave distinguished proofs of his valor against Antiochus the Great; and at his return stood candidate for the censorship. But the nobles, who not only envied him as a new man, but dreaded his severity, set up against him several powerful competitors. Valerius Flaccus, who had been his colleague in the consulship, was a ninth candidate, and these two united their interests. On this occasion Cato, far from flattering the people, or giving hopes of gentleness in the execution of his office, declared from the rostra, with a threatening look and voice, 'That the times required firm and vigorous magistrates to put a stop to that luxury which menaced the republic with ruin; censors who would cut up the evil by the roots, and restore the rigor of ancient discipline.'

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To the honor of the Romans, notwithstanding these intimations, they preferred him to all his competitors. The comitia also appointed his friend Valerius to be his colleague, without whom he had declared that he could not hope to compass the reformations he had in view. With all these accomplishments, Cato had very great faults. His ambition, poisoned with envy, disturbed both his own peace and that of the whole city, as long as he lived. Though he would not take bribes, he amassed wealth by all such means as the law did not punish. His first act in his new office was naming his colleague to be prince of the senate. But what most offended the nobles and their ladies was the taxes he imposed on luxury in all its branches; dress, household furniture, women's toilets, chariots, slaves, and equipage. The people, however, were so pleased with his regulations, that they ordered a statue to be erected to his honor in the temple of Health, with an inscription importing, that by his wise ordinances he had reformed the manners of the republic. Plutarch relates, that before this, upon some of Cato's friends expressing their surprise, that while many persons without merit or reputation had statues, he had none; he answered, 'I had much rather it should be asked why the people have not erected a statue to Cato, than why they have.' Being, in the third Punic war, despatched to Africa, he warmly exhorted the senate to destroy a city and republic, during the existence of which, Rome could never be safe: and after this time never spoke in the senate upon any subject, without concluding with these words, 'I am also of opinion that Carthage ought to be destroyed.' Cato, however severe as a public magistrate, was, in private life, sociable and good-humored, and intermixed his conversation with the liveliest and happiest wit. Plutarch has collected a pretty large number of his sayings. He had married a very handsome wife, who, being extremely afraid of thunder, always threw herself into her husband's arms at the least noise she heard in the sky. Cato, who was very willing to be caressed, told his friends that 'his wife had found out a way to make him love bad weather; and that he never was so happy as when Jupiter was angry.' Cato died A. U. C. 604, aged eighty-five. He wrote, 1. A Roman History; 2. Concerning the Art of War; 3. Of Rhetoric; 4. A Treatise of Husbandry. Of these, the last only is extant.

Cato (Marcus Portius), Minor, was great grandson of Cato the Censor, and from his infancy discovered a singular inflexibility of mind. Sylla, having had a friendship for the father of Cato, sent often for him and his brother. Cato, who was then about fourteen years of age, seeing the number of heads sometimes brought in, asked his preceptor, 'Why does nobody kill this man?' 'Because,' said the other, 'he is more feared than he is hated.' The boy replied, 'Why then did you not give me a sword when you brought me hither, that I might have stabbed him, and freed my country from this slavery?' He imbibed the principles of the Stoic philosophy, under Antipater of Tyre. To increase his bodily strength, he inured himself to extremes of heat and cold; and used to make journeys on foot, and bareheaded, in all seasons. When he was sick, patience and abstinence were his only remedies. Though remarkably sober in the beginning of his life, making it a rule to drink but once after supper, he insensibly contracted a habit of drinking more freely, and of sitting at table till morning. His friends excused this, by saying that the affairs of the public engrossed his attention all the day; and that, being ambitious of knowledge, he passed the night in the conversation of philosophers. Cæsar wrote that Cato was once found dead drunk at the corner of a street, early in the morning, and that the people blushed when they found it was Cato. He affected singularity; and magnanimity and constancy are generally ascribed to him. 'Cato,' says Seneca, 'having received a blow in the face, neither took revenge nor was angry; he did not even pardon the affront, but denied that he had received it. His virtue raised him so high, that injury could not reach him.' Our Stoic, however, was for going to law with Scipio; but his friends diverted him from that design, and he revenged himself by making verses upon his rival. He married Attilia the daughter of Serranus, had two children by her, and afterwards divorced her for very indiscreet conduct. He served as a volunteer under Gallius in the war of Spartacus; but refused the military rewards offered him by the commander. Some years after, he went a legionary tribune into Macedonia, in which station he appeared, in his dress, and during a march, more like a private soldier than an officer. On his return home he was chosen questor; and had scarce entered on his charge, when he made a great reformation with regard to the registrars, whose places were for life, and through whose hands all the public accounts passed. He greatly pleased the people, by making the assassins, to whom Sylla had given considerable rewards, for murdering the proscribed, disgorge their gains. At first his austerity and stiffness displeased his colleagues; but afterwards they were glad to have his name to oppose to all the unjust solicitations, against which they would have found it difficult to defend themselves. To keep out a very bad man, he put in for the tribunate. He sided with Cicero against Catiline, and opposed Cæsar on that occasion. His enemies sent him to recover Cyprus, which Ptolemy had forfeited, thinking to hurt his reputation by so difficult an undertaking; yet none could find fault with his conduct. He tried to bring about an agreement between Cæsar and Pompey; but, seeing it in vain, sided with the latter. When Pompey was slain, he fled to Utica; and, being pursued by Cæsar, advised his friends to be gone, and throw themselves on Cæsar's clemency. His son, however, remained with him; and Statilius, a young man, remarkable for his hatred to Cæsar. The evening before his death, after bathing, he supped with his friends and the magistrates of the city. They sat late, and the conversation was lively. The discourse falling upon this maxim of the Stoics, that 'the wise man alone is free, and that the vicious are slaves;' Demetrius, who was a Peripatetic, undertook to confute it. Cato, in answer, treated the matter with so much earnestness and vehemence of voice, that he confirmed the suspicions of his friends that he designed to kill himself. When he had done speaking, a melancholy silence ensued; and Cato perceiving it, turned the discourse to the present situation of affairs, expressing his concern for those who had been obliged to put to sea, as well as for those who had determined to make their escape by land, and had a dry and sandy desert to pass. The company being dismissed, he walked for some time with a few friends, and going into his chamber, embraced his son with more than usual tenderness, which farther confirmed the suspicions of his resolution. Then lying down on his bed, he took up Plato's Dialogue on the Immortality of the Soul. Having read for some time, he looked up, and missing his sword, which his son had removed, he called a slave, and asked who had taken it away; and, receiving no pertinent answer, he resumed his reading. Some time after, he asked again for his sword; and, without showing any impatience, ordered it to be brought to him; but, having read out the book, and finding nobody had brought it, he called for all his servants, fell into a rage, and struck one of them on the mouth with so much violence that he very much hurt his own hand, crying out in a passionate manner, 'What! do my own son and family conspire to betray me, and deliver me up naked and unarmed to the enemy?' Immediately his son and friends rushed into the room; and began to lament, and to beseech him to change his resolution. Cato raising himself, and looking fiercely at them, 'How long is it,' said he, 'since I have lost my senses, and my son is become my keeper?' They withdrew, and the sword was brought by a young slave. Cato drew it, and finding the point to be sharp, 'Now,' said he, 'I am my own master:' and, laying it down, he took up his book again, which he read twice over. After this he slept so soundly that he was heard to snore by those near him. About midnight he called two of his freed men, Cleanthes his physician, and Butas, whom he chiefly employed in the management of his affairs. The last he sent to the port, to see whether all the Romans were gone; to the physician he gave his hand to be dressed, which was swelled by the blow he had given his slave. This was thought an intimation that he intended to live, and gave great joy to his family. It was now break of day, and Cato slept yet a little more, till Butas returned to tell him that all was perfectly quiet. He then ordered him to shut his door, and flung himself upon his bed, as if he meant to finish his night's rest; but immediately he took his sword, and stabbed himself a little below his chest; yet not being able to use his hand so well by reason of the swelling, the wound did not kill him. It threw him into a convulsion, in which he fell upon his bed, and overturned a table near it. The noise gave the alarm; and his son and friends entering the room, found him weltering in his blood, and his bowels half out of his body. The surgeon, upon examination, found that his bowels were not cut; and was preparing to replace them, and bind up the wound, when Cato recovering, thrust the surgeon from him, and tearing out his bowels, immediately expired, in the forty-eighth year of his age. By this rash act, independent of all other considerations, he carried his patriotism to the highest degree of political frenzy: for Cato, dead, could be of no use to his country; but had he preserved his life, his counsel might have moderated Cæsar's ambition, and, as Montesquieu observes, have given a different turn to public affairs.

CATO'NIAN, *adj.* from Cato; Cato-like, grave, austere.

CATOPTRICKS. See Optics and Light.

CAT-SALT, a name given by salt workers to a very beautifully granulated kind of common salt. It is formed out of the bittern, or leach-brine, which runs from the salt when taken out of the pan. When they draw out the common salt from the boiling pans, they put it into long wooden troughs, with holes bored at the bottom for the brine to drain out; under these troughs are placed vessels to receive this brine, and across them small sticks to which the cat-salt affixes itself in very large and beautiful crystals. This salt contains some portion of the bitter purging salt, is very sharp and pungent, and is white when powdered, though pellucid in the mass. It is used by some for the table, but the greatest part of it is used by the makers of soap

CATSUP. See Ketchup.

CATTARO, a fortified town of Austria, situated at the bottom of a gulf of the same name, twenty-eight miles W. N. W. of Scutari, and capital of the district of Cattaro. It is defended by a castle and battlements, and the rocks around it are so steep and high, that in winter the sun is seen only for a few hours. This is a bishop's see; and a chapter of twelve prebendaries meet here. There are alse three monasteries and two nunneries. Cattaro was ceded by the Austrians, its original possessors, to the French, at the peace of Presburg, 1805. The Russians, however, took possession of it till the peace of Tilsit, when it was again given up to France, but was returned to Austria at the congress of Vienna

CATTI, an ancient people of Germany, who inhabited the country reaching on the east to the river Sala, and on the north to Westphalia; besides Hesse, Wetteravia, and part of the tract on the Rhine, and the banks of the Lahn.

Catti, or Cattivellauni, one of the bravest of the ancient nations of Britain, seated in the country which is now divided into the counties of Hertford, Bedford, and Bucks. The name of this people is written in different ways by Greek and Roman authors, being sometimes called Cassi, Catticuchlani, Catticlaudani, &c. They were of Belgic origin, and it is not improbable that they derived their name Catti from the Belgic word Katten, which signifies illustrious or noble, and that the addition of Vellauni, on the banks of rivers, might be given to them after their arrival in Britain, as descriptive of the situation of their country. Cassibelan, their prince, was made commander-in-chief of the confederated Britons, not only on account of his own personal qualities, but also because he was at the head of one of their bravest and most powerful tribes. In the interval between the departure of Cæsar and the next invasion under Claudius, the Cattivellauni had reduced several of the neighbouring states under their obedience; and again took the lead in opposition to the Romans at the second invasion, under their brave but unfortunate prince

Caractacus. The country of the Cattivellauni was much frequented and improved by the Romans after it was subdued. See Durocobriva.

CATTLE, *n.* The etymology of this word is uncertain. Skinner, Menage, and Spelman, derive it from capitalia, personal goods, whence the word chattels; and their conjecture seems not to be without foundation, as in the old French catal means moveables of any kind; and the term chattail is provincially used in France, in the vicinity of Lyons, to signify all the beasts on an estate. The word in the quotation from Chaucer, will admit of a double meaning; but it probably stands for chattles, as we still say in legal language, goods and chattles; but in that case it shows that there was no difference in the spelling of the two words. Cattle, besides its primary sense of beasts of pasture, is also used as a term of reproach.

For body, good, and *catell*, and lyff, he set at nought,
So was his hert ywoundit for anger and for thought.
Chaucer's Canterbury Tales.

Make poor men's *cattle* break their necks.
Shakspeare.

Boys and women are for the most part *cattle* of this colour. *Id.*

When Lubberkin to town his *cattle* drove,
A maiden fine bedight he hapt to love;
The maiden fine bedight his love retains,
And for the village he forsakes the plains. *Gay.*

The exercise of fraud or rapine is unpunished in a lawless community; and the market is continually replenished by the abuse of civil and paternal authority. Such a trade, which reduces the human species to the level of *cattle*, may tend to encourage marriage and population. *Gibbon.*

Cattle is a collective word, implying those quadrupeds which serve either for tilling the ground, or for food to men. They are distinguished into large, or black cattle, and small cattle: the former including horses, seldom known under that name, bulls, oxen, cows, calves, and heifers; the latter, rams, ewes, sheep, lambs, goats, kids, &c. Cattle are the chief stock of a farm, and those who raise them are called graziers.

CATULLUS (C.), or Q. Valerius, a poet of Verona, who wrote in the times of Cæsar and Pompey, and whose compositions, though elegant, abound with the licentiousness common to that period. He was intimate with the most distinguished men of his age, and directed his satire against Cæsar, whose only revenge was to invite the poet to his table. Catullus was the first Roman who imitated with success the Greek writers, and introduced their numbers among the Latins: and he died in the forty-sixth year of his age, B. C. 40. The best editions of his works, which consist only of epigrams, are that of Vulpius, 4to. Patavii, 1737, and that of Barbou, 12mo. Paris, 1754.

CATURUS, in botany, a genus of plants of the class diœcia, and order triandria. Male: cal. none: cor. three-cleft. Female: cal. tripartite: cor. none: styles three: caps. three-grained and three-celled: seed. solitary: species, two, one a native of India, the other of Cochin China.

CATY, Cati, or Catti, an East Indian weight used especially at China, equivalent to twenty-five ounces and two drams English. It is also used in Japan, Batavia, and other parts of the Indies, but differs in weight.

CATZENELBOGEN, a town and castle of Germany, in the late circle of the Upper Rhine, which gives name to a county. The river of Maine and the city of Mentz, with its territories, divide the county into Upper and Lower, the former belongs to Hesse Darmstadt, and is called Darmstadt from its capital; and the latter to Hesse Reinfields, of which St. Goar is the capital. The town of Catzenelbogen lies twenty-eight miles N. N. W. of Mentz, and has an iron mine near it.

Cava, in anatomy, the largest vein in the body, terminating in the right ventricle of the heart. It is divided in cava ascendens and cava descendens. See Anatomy.

CAVALCA'DE, *n.* Old Fr. *cavalcade;* Ital. *cavalcata;* low Lat. *caballicare;* from *caballus*, καβαλλος. A procession on horseback.

First he that led the *cavalcate*
Wore a sow-gelder's flagellate,
On which he blew as strong a levete
As well-feed lawyer on his brev'ate,
When over one another's heads
They charge, three ranks at once, like Sweads.
Hudibras.

Your *cavalcade* the fair spectators view,
From their high standings, yet look up to you;
From your brave train each singles out a ray,
And longs to date a conquest from your day.
Dryden.

How must the heart of the old man rejoice, when he saw such a numerous *cavalcade* of his own raising.
Addison.

CAVALCADEUR, or Cavelcadour, anciently denoted a riding-master, but is now only applied to a sort of equerries who have the direction of princes' stables.

CAVALI'ER, *n* & *adj.*
Cavalie'rish, *adj.*
Cavali'erly, *adv.*
Cavali'erness, *n.*
Cavali'ero, *n.*

Fr. *chevalier, cavalier;* It. *cavaliere;* Sp. *caballero;* from Fr. *cheval;* Lat. *caballus.* The noun, in its primary sense, indicates one who rides on horseback; and, as that was anciently done only by persons of birth, the word was also applied to any gay, sprightly, military man or gentleman. Cavalier, as an adjective, not only means sprightly, warlike, generous, brave, but also haughty, disdainful. In this last sense it became the designation of the party of Charles I.; some of his military officers having given words of 'great contempt,' and even blows, to the 'vile rabble,' as Clarendon calls them. Cavalierly is haughtily; disdainfully. Cavalierness is arrogant or contemptuous conduct.

For who is he, whose chin is but enriched
With one appearing hair, that will not follow
These culled and choice drawn *cavaliers* to France.
Shakspeare.

The people are naturally not valiant, and not much *cavalier*. Now it is the nature of cowards to hurt, where they can receive none. *Suckling.*

Presbyter Hollis the first point should clear,
The second Coventry, the *cavalier*,
But would they not be argued back from sea,
Then to return home strait infecta re. *Marvell.*

Each party grows proud of that appellation which their adversaries at first intended as a reproach: of this sort were the Guelfs and Gibelines, Huguenots, and *cavaliers*. *Swift.*

In short, he was a very perfect *cavaliero*,
And to his very välet seemed a hero.
Byron's Beppo.

Cavalier, in history, an appellation, given in the revolution of 1649 to the royalists and partisans of Charles I. in opposition to the roundheads or puritans, the favorites of the parliament and Cromwell. See England, History of.

Cavalier, in fortification, an elevation of earth of different shapes, situated ordinarily in the gorge of a bastion, bordered with a parapet, and cut into more or fewer embrasures, according to its capacity. Cavaliers are a double defence for the faces of the opposite bastion: they defend the ditch, break the besiegers' galleries, command the traverses in dry moats, scour the saliant angle of the counterscarp, where the besiegers have their counter batteries, and enfilade the enemies trenches, or oblige them to multiply their parallels. They are likewise very serviceable in defending the breach and the retrenchments of the besieged, and can greatly incommode the entrenchments which the enemy make, being lodged in the bastion.

CAVELIERI (Bonaventure), an eminent mathematician of the seventeenth century, a native of Milan, and professor of mathematics at Bologna, where he published several works on that science, particularly the Method of Indivisibles. He was a scholar of Galileo. His Directorium Generale Uranometricum contains a great variety of most useful rules in trigonometry and astronomy.

CAVALLO (Tiberius), was born at Naples, in 1749, and was the son of an eminent physician of that place. His original destination was to a mercantile profession at London, and he came to England with that view in the year 1771. But the study of nature displaying superior attractions, he was seduced from the counting-house, to the leisure of philosophical retreat, and acquired a well merited reputation as a digester and elucidator of philosophical discoveries. In the year 1779 he was admitted a member of the Neapolitan Academy of Sciences, as well as of the Royal Society of London. For the progress and diffusion of science, we are indebted not more to the happy efforts of original genius, than to the judicious industry of those authors who, from time to time, employ their talents in digesting and elucidating successive discoveries. The distinguished rank which Mr. Cavallo held in this useful class of philosophical laborers, is sufficiently known. His treatises on popular and interesting branches of physics, may be justly esteemed some of the best elementary works which are extant in our language. They possess every requisite of such performances, perspicuity of style, proper selection of materials, and clear arrangement. The merit of Mr. Cavallo is not, however, the merit of a merely judicious compiler. He never aspires indeed to form new and comprehensive views; yet, he generally improves, in some degree, the stock of valuable facts, by his own occasional experiments. He was the author of several papers, published at different times in the Philosophical Transactions of the Royal Society of London. His publications were as follows: A Complete Treatise of Electricity in Theory and Practice, with Original Experiments, one vol. 8vo. 1777, enlarged to three volumes in 1795. An Essay on the Theory and Practice of Medical Electricity, one vol. 8vo. 1780. A Treatise on the Nature and Properties of Air, and other Permanently Elastic Fluids, with an Introduction to Chemistry, 4to. 1781. The History and Practice of Aërostation, 8vo. 1785. Mineralogical Tables, fol. accompanied with an explanatory pamphlet, 1785. A Treatise on Magnetism, in Theory and Practice, with original experiments, 8vo. 1787. Description and Use of the Telescopical Mother-of-Pearl Micrometer, invented by T. C. 8vo. 1793. An Essay on the Medicinal Properties of Factitious Airs, with an Appendix on the Nature of Blood, 8vo. 1798. He died in London in the beginning of 1810.

CA'VALRY. Fr. *cavalerie*. This word was formerly written and pronounced in four syllables, and meant horsemanship, as well as horsemen; but the former sense has grown obsolete. Cavalry signifies horse troops; bodies of men furnished with horses for war.

If a state run most to gentlemen, and the husbandmen and plowmen be but as their workfolks, you may have a good *cavalry*, but never good stable bands of foot. *Bacon's Henry VII.*

Their *cavalry*, in the battle of Blenheim, could not sustain the shock of the British horse.
Addison on the War.

Cavalry, a body of men that fight only on horseback. The word is derived from cavalerie (French), and that from the Latin, caballus, a horse. The Roman cavalry consisted wholly of equites, or knights. The Grecian cavalry were divided into cataphractæ and non-cataphractæ, i.e. into heavy and light armed. Of the Greeks, the Thessalians excelled most in cavalry. The Lacedæmonians, inhabiting a mountainous country, were but meanly furnished with cavalry, till, carrying their arms into other countries, they found great occasion for horse to support and cover their foot. The Athenian cavalry, for a considerable time, consisted only of ninety-six horsemen; but, after expelling the Persians out of Greece, they increased the number to 300, and afterwards to 1200, which was the highest number of cavalry the Athenians ever kept. The Turkish cavalry consists partly of spahis and partly of horsemen, raised and maintained by the zaims and timariots. The chief use of the cavalry is to make frequent excursions to disturb the enemy, intercept his convoys, and destroy the country: in battle to support and cover the foot, and to break through and disorder the enemy; also to secure the retreat of the foot. Formerly the manner of the fighting of the cavalry was, after firing their pistols or carabines to wheel off, to give opportunity for loading again. Gustavus Adolphus is said to have first taught the cavalry to charge through, to march straight up to the enemy, with the sword drawn in the bridlehand, and each man having fired his piece, at the proper distance, to betake himself to his sword, and charge the enemy as was found most advantageous.

Modern cavalry consists of, first, Heavy Horse; in England the Horse Guards and the Oxford Blues are the only troops of heavy horse; second, Dragoons, distinguished from the former by being obliged to fight on foot as well as on horseback; thirdly, Light Horse regiments, mounted on light swift horses, whose men are of middling stature, and but lightly accoutred; fourth, Hussars, originally Hungarian Horse, who wear a very short waistcoat, and a curious doublet, which generally hangs loose on the left shoulder, having several rows of buttons. Their arms are a long crooked sabre, and pistols and carbine; fifth, Lancers, whose principal instrument is a lance with a streamer to its head to frighten the horses of the enemy. See LANCERS.

CAVAN, a county of Ireland, in the province of Ulster, forty-seven miles long, and twenty-four broad; bounded on the west by Leitrim; on the north by Fermanagh; on the east by Monaghan, Louth, and East Meath; and on the south by West Meath and Longford. It contains upward of 8000 houses, thirty-seven parishes, seven baronies, and two boroughs; viz. Cavan and Kilmore. It is populous, and carries on the linen manufacture to a great extent. It sends two members to parliament. It is bleak and open in many parts, but, between Cavan and Lough Erne, the country is picturesque and well wooded, and at the foot of the hills are many beautiful little lakes.

CAVAN, the capital of the above county, is fifty-four miles north-west of Dublin.

CA'VATE, *v.* Lat. *cavo*. To hollow out; to dig into a hollow.

CAVA'ZION, *n.* Lat. *cavo*. In architecture The hollowing or under-digging of the earth for cellarage; allowed to be the sixth part of the height of the whole building.

CAUBUL, CABUL or KABOUL, a considerable province of Afghaunistaun, between the thirtieth and thirty-fifth degrees of north latitude. It is about 250 miles long, and 150 miles broad; being bounded on the north by Kuttore, or Caffristan; on the south by Candahar and Baloochistan; on the east by the Indus; and on the west by Hindoo Kho Mountains, and the province of Bamian. The surface is diversified by vast snowy mountains, hills, extensive plains, and woods. Noble rivers traverse the province, of which Cabul, called also in some parts of its course Attacka, and Cow or Cowmull, are the principal. The leading ridge of high mountains, usually covered with snow, runs from west to east from the neighbourhood of Ghizni to that of Deerukote on the Indus, below Attock, and divides the country into two parts. The tract lying to the north of this is named Lumghanat, and to the south Bungishat; each having one or more considerable streams that finally fall into the Indus. From the neighbourhood of this river to the city of Caubul there is so great deficiency of wood, that all classes of the people suffer at times from want of fuel. Near Baramow is a sandy, uninhabited valley, twenty miles in length; and around Gundamouck the exposed part of the body is frequently covered with a nitrous, scaly, and white substance, which excoriates the skin, and tastes very salt. The chief towns are Cabul and Peshawer.

The soil and productions are very various. The plains of Peshawer and Candahar are fertile, and produce two crops annually of wheat and barley, which are here preferred to Indian corn and rice. The mountain chains are, many of them, condemned to perpetual sterility, and on the south, the moving sand being blown over the fertile tracts, often covers them and converts them into deserts. From Peshawer the central districts receive sugar and cotton cloths in exchange for leather, iron, and tobacco; and the same commodities, with lamp-oil, are exported to Candahar, for which the returns are made in European and Persian manufactures. Horses, furs, and hides, are brought to Caubul from Bocharia.

The regal government of Caubul has been compared to that which was exercised by the ancient Scottish monarchs. Over the great towns and their vicinity, and in regard to foreign dependencies, his authority is supreme and direct. The rest of the country is divided into clans, called Oolooss, who act nearly independently of the sovereign, furnishing contingents of troops or money in war. These are governed by a khaun; who is appointed by the king, out of the oldest family of the oolooss, and who always acts in concert with the jeerga, or representative assembly of the people. Much of the ordinary judicial power is also in this body. The Afghauns of this district are rude in their manners,and the country affords abundant shelt to banditti; but the improvements that follow every portion of political liberty are seen very distinctly here, according to Mr. Elphistone, and their hospitality is unbounded. See AFGHAUNISTAUN.

The British government, in 1809, sent an embassy to the sovereign of this country, and an alliance was entered into, in which it was agreed that the armies of Caubul should oppose the progress of the French and Persians, in case they should attempt a passage to the British territories. Mr. Elphinstone's account of this mission is the only description of the territory worth referring to.

CAUBUL, the capital of the foregoing province, stands in a spacious plain, which is well watered by the river of that name, and interspersed with other small walled towns. The capital is surrounded by a wall, about a mile and a half in circumference, and the houses are built of stone, clay, and bricks unburnt. The vicinity is adorned by excellent fruit gardens, and the great bazaar, or market-place, is much crowded. The city is frequented by the Usbec Tartars, and Hindoo merchants, who are protected by the government. It is 839 miles distant from Delhi, and 1815 from Calcutta.

CAUCA, an ancient town in Old Castile, Spain, taken by the Romans under Lucullus, A. U. C. 601. when a dreadful massacre of the inhabitants took place. It is eighteen miles north of Segovia.

Cauca, a large river of South America, which has its rise in the province of Popayan, between the great western and middle ridges of the Andes. After a course of about 500 miles, it falls into the Rio Magdalena, in lat. 4° 30′ S. Also a river in the province of Venezuela.

CAUCALIS, in botany, bastard parsley, a genus of the digynia order and pentandria class of plants; natural order forty-fifth, umbellatæ: Involucres undivided: flowers radiate: florets of the centre male; fruit subovate, striate, muricate with stiff bristles. Species thirteen; many of them natives of the hedges or corn fields of our own country, the rest chiefly of the south of Europe.

CAUCASUS, a general name for a high ridge of mountains in Asia. Sir John Chardin describes one mountain under this name as the highest of the ridge, and the most difficult to pass. It has frightful precipices, and in many places the roads are cut out of the solid rock. This mountain is thirty-six leagues over, and the summit eight leagues broad. The top is perpetually covered with snow. Other parts, however, are extremely fruitful.

The ridge extends between the Caspian and the Black Seas, and makes a curve near Astrakhan, directing its course towards the eastern shore of the Caspian, where they become secondary mountains, being disposed in strata. As they are an inexhaustible magazine of combustible substances, they contain an astonishing quantity of metals. Along the foot of the chain we sometimes meet with warm springs of naphtha of different qualities, &c. see Caspian; sometimes we find native sulphur, mines of vitriol, or lakes heated by internal fires. These mountains, excepting the tops, which are always covered with snow, are very fertile; abounding in corn, wine, honey, gum, fruits, hogs, and large cattle. The vines twine about the trees, and rise so high, that the inhabitants cannot gather the fruit from the uppermost branches. They are inhabited by various nations; as the Abkhas, Circassians, Georgians, Tartars, &c. who all speak different languages. See these articles. They have many streams of excellent water, and a vast number of towns and villages. The inhabitants are for the most part Christians of the Georgian church. They have fine complexions, and the women are very beautiful. In winter they wear snow shoes in the form of rackets, which prevent them from sinking in the snow, and enable them to run upon it with great swiftness.

CA'UDAL, *adj.*
Ca'udate, *adj.*
Ca'udated, *adj.*
} Lat. *cauda*. That which relates to the tail of an animal; having a tail.

How comete, *caudate*, crinite stars are framed
I know. *Fairfax. Tasso.*

The tail, instead of scuta is furnished with sub*caudal*, squama. *Russel.*

CA'UDEBECK, *n.* A sort of light hat, so called from a town in France where they were first made.

CAUDEX, by Malpighi and others, is used for the stem or trunk of a tree: by Linnæus for the body of the root, part of which ascends, part descends See Botany.

CAUDINÆ Furcæ, or Caudinæ Furculæ, spears disposed in the form of a gallows, under which prisoners of war were made to pass. They gave name to a narrow pass near Caudium, where the Samnites obliged the Roman army and the two consuls to lay down their arms and pass under the gallows, or yoke, as a token of subjection.

CA'UDLE, *v.* & *n.* Fr. *chaudeau*, says Dr. Johnson; but the old Fr. *caudelée*, comes still nearer. Those who are fond of etymological travelling, may proceed to the Lat. *calidus*, and Gr. καυδαυλος, as Junius and Skinner have done before them. The thing itself is a mixture of gruel, wine, or beer, sugar, and spices; which is given to women in childbed, to those who visit them, and to sick people. To caudle is to make caudle; to mix as caudle.

He had good broths, *caudle*, and such like; and I believe he did drink some wine. *Wiseman.*

Ye shall have a hempen *caudle* then, and the help of a hatchet. *Shakspeare.*

Will the cold brook,
Candied with ice, *caudle* thy morning toast,
To cure thy o'ernight's surfeit. *Id.*

CA'VE, *v.* & *n.*
Ca'vern, *n.*
Ca'vernous, *adj.*
Ca'vity, *n.*
} Fr. *cave*, *caver*, *cavité*; Ital. *cavar*, *cavare*, *caverna*; Lat. *cavea*, *caveus*, hollow. from χάος. Eol. dial. χαFος

In the Goth. *kaf* means *profundum*, and may thence have been borrowed to signify any thing deep or hollow. A cave, or cavern, is a den; a habitation in the earth; it formerly meant also any hollow place. To cave, is to dwell in a cave. Cavernous, and caverned, indicate anything full of caverns, hollow, excavated; and the latter word has likewise the sense of dwelling in a cavern. Cavity is hollowness; hollow; a hollow place.

Two little windows ever open lie,
The sound unto the *cave's* third part conveying;
And slender pipe, whose narrow *cavity*.
Doth purge the inborn air, that idly staying,
Would else corrupt, and still supplies the spending;
The *cave's* third part in twenty by-ways bending,
Is called the labyrinth, in hundred crooks ascending.
Fletcher's Purple Island.

Such as we,
Cave here, haunt here as outlaws. *Shakspeare.*

The wrathful skies
Gallow the very wanderers of the dark
And make them keep their *caves*. *Id.*

Bid him bring his power
Before sun-rising, lest his son George fall
Into the blind *cave* of eternal night. *Id.*

Where wilt thou find a *cavern* dark enough
To mask thy monstrous visage? *Id.*

The object of sight doth strike upon the pupil of the eye directly; whereas the *cave* of the ear doth hold off the sound a little. *Bacon's Nat. Hist.*

Clorinda pastures, *caves*, and springs,
These once had been enticing things. *Marvell.*

Through this a *cave* was dug with vast expence;
The work it seemed of some suspicious prince.
Dryden.

There is nothing to be left void in a firm building; even the *cavities* ought not to be filled with rubbish, which is of a perishing kind. *Id.*

High at his head from out the *caverned* rock,
In living rills, a gushing fountain broke.
Pope's Odyssey.

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living rills, a gushing fountain broke.
Pope's Odyssey.

No bandit fierce, no tyrant mad with pride,
No *caverned* hermit, rests self-satisfied. *Pope.*

No great damages are done by earthquakes, except only in those countries which are mountainous, and consequently stony and *cavernous* underneath.
Woodward's Natural History.

Embattled troops, with flowing banners, pass
Through flowery meads, delighted; nor distrust
The smiling surface; whilst the *caverned* ground
Bursts fatal, and involves the hopes of war
In fiery whirles. *Philips.*

If the atmosphere was reduced into water, it would not make an orb above thirty-two feet deep, which would soon be swallowed up by the *cavity* of the sea, and the depressed parts of the earth. *Bentley.*

For as he spoke the rending glebe gave way,
And fires infernal from beneath broke forth,
Disclosing horrid *caves* unknown to day,
Deep in the bowels of the groaning earth. *Gay.*

Goltho he calls; his manly voice he rears
Oft to its pitch, which hill and dale rebound;
The much-loved name each grot and *cavern* hears,
And Goltho echoes through the sylvan bound. *Id.*

Monsters of the foaming deep,
From the deep ooze and gelid *cavern* roused,
They flounce and tremble in unweildy joy.
Thomson.

Who from the black and bloody *cavern* led
The savage stern, and soothed his boisterous breath,
Who spoke, and Science reared her radiant head
And brightened o'er the long benighted waste.
Beattie.

Yet lingering comfortless in lonesome wild,
Where Echo sleeps mid *caverned* vales profound,
The pride of Troy, Dominion's darling child,
Pines while the slow hour stalks its sullen round.
Beattie

Is there no forest,
Whose shades are dark enough to shelter us,
Or *cavern*, rifled by the perilous lightning,
Where we must grapple with the tenantry wolf
To earn our bloody lair? there let us bide,
Nor hear the voice of man, nor call of heaven.
Maturin.

CAVE (Dr. William), a learned English divine, born in 1637, educated in St. John's Colledge, Cambridge, and successively minister of Hasely in Oxfordshire, All-hallows in London, and Islington. He became chaplain to Charles II. and in 1684 was installed a canon of Windsor. He compiled the Lives of the Primitive Fathers in the Three First Centuries of the Church, esteemed a very useful work; and Historia Literaria, &c. in which he gives an exact account of all who had written for or against Christianity, from the time of Christ to the fourteenth century: which works produced a warm controversy between Dr. Cave and M. Le Clerc, who was then writing his Bibliotheque Universelle in Holland. Dr. Cave died in 1713.

CAVE (Edward), celebrated as the projector of the Gentleman's Magazine, the first publication of the kind in England, was born in 1691. After passing some time at the free school of Rugby, he became clerk to a collector of excise; but soon left that situation and came up to London in quest of more suitable employment. Here he bound himself apprentice to Mr. Collins, a printer of some reputation. Within two years he attained to such skill in his art, and gained so far the confidence of his master, that he was sent to conduct a printing-house at Norwich, and publish a weekly paper. In this undertaking he met with some opposition, which produced a public controversy, and procured Cave the reputation of a writer. He afterwards obtained by his wife's interest a place in the post-office; but still continued, at his intervals of attendance, to exercise his business. He corrected the Gradus ad Parnassum: for which he was liberally rewarded by the company of stationers. He was afterwards raised to the office of clerk of the franks, in which he acted with great spirit and firmness; and his opposition to the abuse of this privilege occasioned his ejectment from the office. He had now, however, collected a sum sufficient for the purchase of a small printing-office, and began the Gentleman's Magazine; to the success of which he owed the affluence in which he passed the last twenty years of his life, and the fame deservedly attached to the name of its projector. Mr. Cave continued to improve his Magazine, and had the satisfaction of seeing its success proportionate to his diligence, till, in 1753, he fell into a diarrhœa, and afterwards into a kind of lethargic insensibility; and died Jan. 10th, 1754, having just concluded the twenty-third volume of his Magazine.

CA'VEAT, *n. s.* Lat. *caveat*, let him beware. Intimation of caution.

A *caveat* is an intimation given to some ordinary or ecclesiastical judge by the act of man, notifying to him, that he ought to beware how he acts in such or such an affair. *Ayliffe.*

The chiefest *caveat* in reformation must be to keep out the Scots. *Spenser on Ireland.*

I am in danger of commencing poet, perhaps laureat; pray desire Mr. Rowe to enter a *caveat*.
Trumbull to Pope.

CAVEAT, in law, an intimation to an ecclesiastical judge, to beware how he acts in such an affair, is used to stop the proving of a will, the granting letters of administration, &c. to the prejudice of another.

CAVEATING, in fencing, is the shifting the sword from one side of that of the adversary to the other.

CAVENDISH (Sir William), descended of an ancient family, was born about 1503. Having had a liberal education, he was taken into the family of cardinal Wolsey, whom he served as gentleman usher of the chamber. In 1527 he attended his master on his splendid embassy to France, returned with him to England, and was one of the few who continued faithful to him in his disgrace. He was with him when he died, and delayed going to court till he had performed the last duty of a faithful servant, by seeing his body decently interred. The king was so far from disapproving of his fidelity, that he immediately took him into his household, made him treasurer of his chamber, a privy-counsellor, and a knight. In 1540 he was nominated one of the auditors of the court of augmentations, and soon after obtained a grant of several lordships in Hertfordshire. In the reign of Edward VI. his estates were much increased by royal grants in seven different counties: and he continued in favor during the reign of Mary I. He died in 1557. He was the founder of Chatsworth, and

, ~cestor of the dukes of Devonshire. He wrote The Life and Death of Cardinal Wolsey: London 1667; reprinted in 1706.

Cavendish (William), duke of Newcastle, grandson of Sir William, was born in 1592. In 1610 he was made knight of the bath; in 1620 created baron Ogle, and viscount Mansfield; and in 1628 earl of Newcastle, and baron Cavendish. He was after this made governor to the prince of Wales, afterwards Charles II. When the troubles broke out in Scotland, and the king's treasury was low, he contributed £10,000, and raised a troop of horse, consisting of about 200 knights and gentlemen, who served at their own charge, were commanded by the earl, and entitled the prince's troop. He afterwards raised a body of 8000 horse, foot, and dragoons; with which he took some towns, and gained several unimportant victories. On this he was created marquis of Newcastle; but the king's affairs being ruined by the rashness of prince Rupert, he went abroad, and staid for some time at Paris; where his circumstances were so bad, that he and his wife were obliged to pawn their clothes for a dinner. He afterwards removed to Antwerp, where, notwithstanding his distress, he was treated, during an exile of eighteen years, with extraordinary marks of distinction. On his return at the Restoration, he was created earl of Ogle and duke of Newcastle. He spent his time in a country retirement, was the patron of men of merit, and died in 1697, aged eighty-four. He wrote a treatise on Horsemanship, which is esteemed; also four comedies.

Cavendish (William). This nobleman, who was the first duke of Devonshire, was born in 1640; and, in his twenty-first year, was elected one of the representatives of the county of Derby. In 1665 he served as a volunteer in the fleet, under the duke of York. As a member of parliament he distinguished himself against the arbitrary measures of the court; he appeared as a witness in favor of Lord Russell; and he offered to exchange clothes with that nobleman, to enable him to escape. His country is lastingly indebted to him, for his having been a very active planner of the revolution of 1688.

Cavendish (Hon. Henry), was born in London, on the 10th of October, 1731. His father was lord Charles Cavendish, of the Devonshire family. During his father's lifetime he was kept rather in narrow circumstances, being only allowed an annuity of £500 a year. It was during this period that he acquired those habits of economy, and those oddities of character, which he ever afterwards exhibited. At his father's death he was left a very considerable fortune; and an aunt, who died at a later period, bequeathed him a very handsome addition. It appeared to be finally not in his power to spend the greater part of his income: so that at the period of his death he left behind him nearly £1,300,000, and was the greatest proprietor in the Bank of England. His private bankers, at one period thinking it improper to keep so large a balance as he had left in their hands, sent one of the partners to wait upon him, in order to learn how he wished to dispose of it. The banker was admitted, and, after employing the necessary precautions with a man of Mr. Cavendish's peculiar disposition, stated the circumstance, and begged to know whether it would not be proper to lay out the money. Mr. Cavendish dryly answered, 'You may lay it out if you please,' and left the room. Mr. Cavendish hardly ever went into any other society than that of his scientific friends. He never was absent from the weekly dinner of the Royal Society Club, at the Crown and Anchor Tavern. At these dinners, when he happened to be seated near those he liked, he often conversed a great deal; though at other times he was very silent. He was, likewise, a constant attendant at Sir Joseph Banks's Sunday evening meetings. He had a house in London, which he only visited once or twice a week at stated times, and without ever speaking to the servants. It contained an excellent library, to which he gave all literary men the freest and most unrestrained access. But he lived in a house on Clapham Common, where he scarcely ever received any visitors. His relation, lord George Cavendish, to whom he left by will the greatest part of his fortune, visited him only once a year; and the visit hardly ever exceeded ten or twelve minutes. He was shy and bashful, to a degree bordering upon disease. He could not bear any person to be introduced to him, or to be pointed out, in any way, as a remarkable man. One Sunday evening, he was standing at Sir Joseph Banks's, in a crowded room, conversing with Mr Hatchett, when Dr. Ingenhousz, who had a good deal of pomposity of manner, came up, with an Austrian gentleman in his hand, and introduced him formally to Mr. Cavendish. He mentioned the titles and qualifications of his friend at great length, and said that he had been peculiarly anxious to be introduced to a philosopher so profound, and so universally known and celebrated, as Mr. Cavendish. As soon as Dr. Ingenhousz had finished, the Austrian gentleman began, and assured Mr. Cavendish that his principal reason for coming to London was to see and converse with one of the greatest ornaments of the age, and one of the most illustrious philosophers that ever existed. To all these high-flown speeches Mr. Cavendish answered not a word; but stood with his eyes cast down, quite abashed and confounded. At last, spying an opening in the crowd, he darted through it with all the speed he was master of; nor did he stop till he reached his carriage, which drove him directly home. Mr. Cavendish died on February the 4th, 1810, aged seventy-eight years, four months, and six days. His appearance did not much prepossess strangers in his favor; and in his speech he had an impediment. His education seems to have been very complete; for he was an excellent mathematical scholar, a profound electrician, and a most acute and ingenious chemist. He never ventured to give an opinion upon any subject, unless he had studied it to the bottom. The whole of his literary labors consist of seventeen papers, published in the Philosophical Transactions, and occupying each only a few pages; but full of the most important discoveries, and the most profound investigations. Ten of them treat of chemical subjects, two of electricity, two of meteorology, and three relate to asronomy.

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CAVE'SSON, *n.* Fr. *cavesson, caveçon*; Ital. and Span. *cabesson*; Lat. *capistrum*. In horsemanship, a sort of noseband, sometimes made of iron, and sometimes of leather or wood; sometimes flat, and sometimes hollow or twisted; which is put upon the nose of a horse, to forward the suppling and breaking of him.

> An iron *cavesson* saves and spares the mouths of young horses when they are broken; for, by the help of it, they are accustomed to obey the hand, and to bend the neck and shoulders, without hurting their mouths, or spoiling their bars with the bit.
>
> *Farrier's Dict.*

CAUF, Goth. *kaf, kafa*. A chest with holes in the top, to keep fish alive in the water.

CAUHQ-ROY, in natural history, a fossil which the natives of the East Indies calcine, and give in large doses in the hiccough, and pulmonary complaints. It is also used in dyeing. It is a kind of ochre, or clayey iron ore, found in great abundance in the hills. Iron is sometimes extracted from it.

CAVIA, the cavy, in zoology, a genus of quadrupeds, belonging to the order of glires. They have two wedge-like cutting teeth in each jaw; eight grinders in both. The fore feet have four or five toes; the hind three, four, or five each. The tail is very short or entirely wanting; and the collar bones are wanting. They seem to hold a middle place between the marine quadrupeds and the rabbit genus; and have a slow and mostly kind of leaping pace. They never climb trees, but dwell in hollow trees or in burrows which they dig in the earth; and live on vegetables. There are seven species, viz. 1. C. acuachy, the akouchy of Buffon, and olive cavy of Pennant, has a short tail; is olive colored above and whitish below. It inhabits Guiana, Cayenne, and Brasil; is about the size of a half grown rabbit; is easily tamed, and is esteemed delicate food. The female brings one or two at a litter. It inhabits woods, and lives on fruits. They are natives of Brasil. 2. C. aguti, the agouty, has a very short tail, the upper parts are brown, mixed with red and black; the rump a bright orange, and the belly yellowish. They inhabit South America and the West India Islands. They search for their food through the day, and carry it home to their dwellings, where they hoard what they cannot eat. They feed sitting on their hind legs, and carry their food with their fore paws to their mouth. Their flesh is savoury like that of a rabbit. They grunt like pigs, and are very voracious. When angry they beat the ground with their feet. 3. C. aperea, the aperea, or Brasilian coney, has no tail; is reddish above, and white below; has short ears; four toes before and three behind, the middle one longest; the upper lip divided; the fore feet black and naked. It lives in holes of rocks, from which it is hunted by small dogs. It is about a foot long, and runs like a hare. The flesh resembles that of a rabbit, but excels it in flavor. 4. C. capybara, the sus hydrochæris of Linnæus, or river hog of Dampier, has five webbed toes guarded by hoofs, on the hind feet, but no tail; is above two feet and a half long; the head and nose are large and thick; the eyes black; the ears small, erect, rounded and naked; the upper jaw long; and the upper lip divided. The neck and legs are short, and the hair is harsh like bristles. These animals inhabit the east of South America, from the isthmus to Brasil and Paraguay; live in fenny woods near rivers; swim, dive, and keep under water; catch fish at night, but bring them on shore and eat them sitting on their hind legs, like apes. They feed also on vegetables. They keep together in large herds, and make a noise, like the braying of asses. 5. C. cobaya, the mus porcellus, guinea pig, or pig-like mouse of Linnæus, and the restless cavy of Pennant, has four toes on the fore, and three on the hind feet, but no tail: the color is white, variegated with irregular orange and black blotches. The body is thick, and seldom exceeds seven inches in length. They have short broad ears, and large prominent brownish eyes; are very restless, and grunt continually like young pigs. They feed on bread, grain, fruits, &c.; are very delicate, and cannot bear cold or moisture. The female breeds at three months old; goes with young three weeks, and brings from four to twelve at a birth, though she has only two teats. 6. C. magellanica, the Patagonian hare or cavy, is so large as to weigh sometimes twenty-six pounds. It has long legs, with four toes before, and three behind, armed with long black claws; hardly any tail; the nose has tufts of curly hair, and long numerous whiskers; the ears are long and dilated; the upper lip divided; the face and back ash-colored; breast and sides tawny; the belly a dirty white. It inhabits the country about Port Desire in Patagonia. The flesh is white and well flavored. It feeds on vegetables, and burrows in the ground. 8. C. paca, the mus paca of Linnæus, or spotted cavy of Pennant, has five toes on all the feet; and the sides are marked with rows of gray or pale yellow spots. The body and head measure about two feet in length; the tail is like a small button, and so extremely short as to be hardly apparent; the mouth is very small; the upper lip divided; the nostrils are very large, and the muzzle is garnished with long whiskers; the ears are short and roundish; the eyes are large, prominent, and brownish; the two cutting teeth in each jaw are very long and of great strength; the hind legs are longer than the fore. This species inhabits Brasil, Guiana and probably all the warmer parts of America. It lives in fenny places near rivers, burrowing in the ground, and keeping its hole exceedingly clean, to which it has always three distinct outlets. It grows very fat, and is esteemed a great delicacy. The female has two teats situate between the hind thighs, and has only a single young one at a litter.

CAVIA'RE, *n.* }
CA'VIER. } 'The etymology is uncertain,' says Johnson, 'unless it come from Lat. *garum*, sauce or pickle, made of fish salted.' Its Russian name is *ikari*. Todd is of opinion that it is adopted from the barb. Greek *καβιαρι* or *καυιάρι*.

> The eggs of a sturgeon, being salted and made up into a mass, were first brought from Constantinople by the Italians, and called *caviare*. *Grew's Museum.*

CAVIARE, the hard roes of the sturgeon, are formed into small cakes, about an inch thick

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and three or four inches broad, by taking out all the nerves or strings; then washing the spawn in white wine or vinegar, and spreading it on a table. It is then salted and pressed in a fine bag; after which it is cased up in a vessel with a hole at the bottom, that if any moisture is left it may run out. Caviare is in great request among the Muscovites, on account of their three Lents, which they keep with a superstitious exactness. The Italians settled at Moscow carry on a very great trade in it throughout that empire, there being a prodigious quantity of sturgeon taken at the mouth of the Wolga and other rivers which fall into the Caspian sea. A pretty large quantity of caviare is also consumed in Italy and France. They get it from Archangel, but commonly buy it of the English and Dutch. According to Savary, the best caviare brought from Muscovy is prepared from the belluga, which is much preferable to that made of the spawn of sturgeon. A kind of caviare, or rather sausage, is also made from the spawn of some other fishes; particularly a sort of mullet caught in the Mediterranean.

CA'VIL, *v.* & *n.*
CAVILLA'TION, *n.*
CA'VILLER, *s.*
CA'VILLINGLY, *adv.*
CA'VILLINGNESS, *n.*
CA'VILLOUS, *adj.*
CA'VILLOUSLY, *adj.*

Fr. *caviller;* Ital. *cavillare;* Span. *cavilar;* Lat *cavillor*. To cavil is to carp; to raise captious, frivolous, verbal objections; to contest about trifles; to wrangle without a solid reason; to receive with objections. It was once used in the sense of to mock, to scoff. The caviller is a character who has a strong relationship with the captious man; the former, however, is less disposed perhaps to quarrel than the latter, less snappish, but equally teazing. Cavillation formerly meant a merry taunt, a subtle forged tale, but is now confined to the practice of making captious objections.

I'll give thrice so much land
To any well-deserving friend;
But, in the way of bargain, mark ye me,
I'll *cavil* on the ninth part of a hair. *Shakspeare.*

My lord, you do not well in obstinacy
To *cavil* in the course of this contract. *Id.*

I might add so much concerning the large odds between the case of the eldest churches in regard of heathens, and ours in respect of the church of Rome, that very *cavillation* itself should be satisfied. *Hooker.*

Wiser men consider how subject the best things have been unto *cavil*, when wits, possessed with disdain, have set them up as their mark to shoot at. *Id.*

Socrates held all philosophers *cavillers* and madmen. *Burton's Anat. Mel.*

Thou didst accept them: wilt thou enjoy the good,
Then *cavil* the conditions? *Paradise Lost.*

Since that so *cavillously* is urged against us.
Milton. Art. of Peace.

Several divines, in order to answer the *cavils* of those adversaries to truth and morality, began to find out fárther explanations. *Swift.*

He *cavils* first at the poet's insisting so much upon the effects of Achilles's rage. *Pope's Notes on the Iliad.*

The candour which Horace shews, is that which distinguishes a critic from a *caviller*. *Addison.*

Those persons are said to be *cavillous* and unfaithful advocates, by whose fraud and iniquity justice is destroyed. *Ayliffe.*

Let *cavillers* deny
That brutes have reason: sure 'tis something more;
'Tis Heaven directs, and stratagems inspires,
Beyond the short extent of human thought. *Somervile.*

CA'VIN, *n.*, in the military art, a natural hollow, fit to cover a body of troops, and consequently facilitate their approach to a place.

CAUK, *n.*
CAU'KY, *adj.*

A coarse talky spar.

A white, opaque, *cauky* spar, shot or pointed.
Woodward.

CAUL, *n.* Isl. *koll;* Per. *kulah;* Goth. *kulle*. A net for women's hair; the hind part of a woman's cap; any kind of small net; the omentum; vulgarly, the membrane which sometimes envelopes the head of a child at the birth, and is superstitiously believed to be a preservative from being drowned.

Let see which is the proudest of hem alle,
That wereth or a kerchef or a *calle*,
That dare say nay of what I shall you teche.
Chaucer. Cant Tales.

A solemn silence was proclaimed, the judges sat and heard,
What truth could tell, or craft could fain, and who should be preferred:
Then beauty stept before the bar, whose breast and neck was bare,
With hair trust up, and on her head a *caul* of gold she ware. *Surrey.*

Ne spared they to strip her naked all,
Then when they hed despoiled her tire and *caul*,
Such as she was, their eyes might her behold.
Spenser.

Her head with ringlets of her hair is crowned,
And in a golden *caul* the curls are bound.
Dryden Æneid.

An Indian mantle of feathers, and the feathers wrought into a *caul* of packthread. *Grew.*

The *caul* serves for the warming the lower belly, like an apron or piece of woollen cloth. Hence a certain gladiatour, whose *caul* Galen cut out, was so liable to suffer cold, that he kept his belly constantly covered with wool. *Ray.*

The beast they then divide, and disunite
The ribs and limbs, observant of the rite:
On these, in double *cauls* involv'd with art,
The choicest morsels lay. *Pope's Odyssey.*

CAUL, in midwifery, a small part of the placenta sometimes found on the head of the new born child, and formerly applied to several superstitious uses. To this day we sometimes see advertisements of this substance in the public papers; sailors considering it a protection against drowning.

CAULABAGH, a town of Caubul, in the province of Paishawur, on the west side of the river Indus. Near this place are large rocks of pure salt, and a considerable alum manufacture. All the houses are built on terraces cut out of the hill, and the river here is confined to a channel only about 400 yards wide. The town is sometimes called Khara Bagh, or the Garden of Salt.

CAULI'FEROUS. Lat. *caulis* and *fero*, a term in botany for such plants as have a true stalk.

CAULKING, or CAUKING, OF A SHIP, is driving very close a quantity of oakum, or old ropes untwisted and drawn asunder, into the seams of the planks, or into the intervals where the planks are

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joined together, in the ship's decks or sides, in order to prevent the entrance of water. After the oakum is driven very hard into these seams, it is covered with hot melted pitch or resin, to keep the water from rotting it. Among the ancients, the first who made use of caulking, were the inhabitants of Phœacia, now Corfu. Wax and resin appear to have been commonly used previously to that period. The Poles use a sort of unctuous clay for the same purpose, on their navigable rivers.

CAULKING IRONS, iron chissels formed for caulking. Some of these are broad, some round, and others grooved.

CAU'PONATE. } Lat. *caupono*; to keep a
CA'UPONISE. } victualling-house; to sell

wine or victuals; to act as a sutler.

CAURSINES, CAURSINI, Italians who came into England about 1235, terming themselves the pope's merchants, but driving no other trade but letting out money; and having great banks in England, they differed little from Jews, except that they were more merciless to their debtors.

CAUSALTY, among miners, denotes the lighter, sulphureous, earthy part of ores, carried off in the operation of washing. This, in the mines, they throw in heaps upon banks, which in six or seven years they find it worth their while to work over again.

CAUSA MATRIMONII PRÆLOCUTI, in common law, a writ that lies where a woman gives land to a man in fee to the intent he shall marry her, and he refuses to do it in a reasonable time, being required by the woman; and in such case, for not performing thc condition, the entry of the woman into the lands again has been adjudged lawful. The husband and wife may sue this writ against the person who ought to have married her.

CAUSE, *v.* & *n.*
CA'USAL, *adj.*
CAUSA'LITY, *n.*
CAU'SALLY, *adv.*
CAUSA'TION, *n.*
CA'USATIVE, *adj.*
CAUSA'TOR, *n.*
CA'USELESS, *adj.*
CA'USELESSLY, *adv.*
CA'USER, *n.*

Lat. *causa*. Etymologists have been woefully at fault, with respect to the origin of this word. It has been seriously traced to chaos, because all things sprung from chaos; to *καρειν*; a cavendo; a casu; and to caiso; but nothing satisfactory has been written on the subject. A cause signifies that which produces or effects any thing; the reason, the agent, the inducing, or motive, power; reason of debate; subject of litigation; side, party, ground or principle of action or opposition. To cause, is to effect, to bring about; to produce. There is an obsolete usage of the verb, meaning to give a cause or reason which is trivial, not valid. Causable is that which may be caused; causal, is relating to, implying, or containing causes; causality, is the agency of a cause; causally, according to the order, or series of causes; causation, the act or capability of causing. In grammar, causative denotes that which expresses a cause or reason.

When he withstandeth our temptation,
It is a *cause* of his salvation.
Chaucer's Canterbury Tales.

Yet is my truth yplight
And love avowed to other lady late,
That, to remove the same, I have no might
To change love *causeless*, is reproach to warlike
knight. *Spenser's Faerie Queene.*

His whole oration stood upon a short narration, which was the *cause* of this metamorphosis. *Sidney.*

Never was man whose apprehensions are sober, and by a pensive inspection advised, but hath found by an irresistible necessity one everlasting being, all for ever *causing*, and all for ever sustaining. *Raleigh.*

The rest shall bear some other sight,
As *cause* will be obeyed. *Shakspeare.*

O madness of discourse!
That *cause* sets up with and against thyself. *Id.*

Is not the *causer* of these timeless deaths
As blameful as the executioner. *Id.*

The wise and learned, amongst the very heathens themselves, have all acknowledged some first *cause*, whereupon originally the being of all things dependeth: neither have they otherwise spoken of that *cause*, than as an agent, which, knowing what and why it worketh, observeth, in working, a most exact order or law. *Hooker.*

Human laws are not to be broken with scandal, nor at all without reason; for he that does it *causelessly*, is a despiser of the law, and undervalues its authority. *Taylor's Holy Living.*

Spices *cause* hot and head melancholy, and are for that *cause* forbidden by our physicians, to such men as are inclined to this malady, as pepper, ginger, cinnamon, cloves, mace, dates, &c., honey and sugar. *Burton. Anat. Mel.*

Well hast thou fought
The better fight, who single hast maintained,
Against revolted multitudes, the *cause*
Of truth, mightier than they in arms. *Milton.*

That may be miraculously effected in one, which is naturally *causable* in another. *Browne's Vulgar Errours.*

As he created all things, so is he beyond and in them all, in his very essence, as being the soul of their *causalities*, and the essential *cause* of their existence. *Id.*

Thus may it more be *causally* made out, what Hippocrates affirmeth. *Id.*

Demonstratively understanding the simplicity of perfection, and the invisible condition of the first *causator*, it was out of the power of earth, or the areopagy of hell, to work them from it. *Id.*

Thus doth he sometimes delude us in the conceits of stars and meteors, besides their allowable actions, ascribing effects thereunto of independent *causation*. *Id.*

As women yet who apprehend
Some sudden *cause* of *causeless* fear,
Although that seeming *cause* take end,
A shaking through their limbs they find. *Waller*

Yet he does himself excuse,
Nor indeed without a *cause*,
For, according to the laws,
Why did Chloe once refuse. *Marvell,*

So great, so constant, and so general a practice, must needs have not only a *cause*, but also a great, a constant, and a general *cause*, every way commensurate to such an effect. *South.*

Cause is a substance exerting its power into act, to make one thing begin to be. *Locke*

Things that move so swift as not to affect the senses distinctly, and so *cause* not any train of ideas in the mind, are not perceived to move. *Id.*

Reach the Almighty's sacred throne,
And make [illegible] power, the *cause* of all things known
Blackmore's Creation.

Ere to thy *cause*, and thee, my heart inclined,
Or love to party had seduced my mind. *Tickell.*

Says my uncle, I pray you discover,
What hath been the *cause* of your woes,
That you pine and you whine like a lover,
I have seen Molly Mog of the Rose. *Gay.*

Causal propositions are, where two propositions are joined by *causal* particles; as, houses were not built, that they might be destroyed; Rehoboam was unhappy, because he followed evil counsel. *Watts' Logic.*

Yet soon the dance will *cause* the cheeks to glow,
And melt the waxen lips, and neck of snow. *Bishop.*

Now, virtue, now thy powerful succour lend,
Shield them for liberty who dare to die!
Ah! Liberty! will none thy *cause* befriend?
Are these thy sons, thy generous sons that fly.
Beattie.

Not to understand a treasure's worth,
Till time has stolen away the slighted good,
Is *cause* of half the poverty we feel,
And makes the world the wilderness it is. *Cowper.*

Cause stands opposed to effect. We obtain the idea of cause and effect from observing the vicissitudes of things, while we perceive some qualities or substances begin to exist, and that they receive their existence from the due application and operation of other beings. Thus, fluidity in wax or metals, is the effect of a certain degree of heat, which we observe to be constantly produced by the application of such heat; which we therefore style the cause.

Aristotle, and the schoolmen after him, distinguished four kinds of causes; the efficient, the material, the formal, and the final. This, like many of Aristotle's distinctions, is only a distinction of the various meanings of an ambiguous word; for the efficient, the matter, the form, and the end, have nothing common in their nature, by which they may be accounted a species of the same genus; but the Greek word, which we translate cause, had these four different meanings in Aristotle's days, and we have added other meanings. We do not indeed call the matter or the form of a thing its cause; but we have final causes, instrumental causes, occasional causes, and many others. Thus the word cause has been so hackneyed, and made to have so many different meanings in the writings of philosophers, and in the discourse of the vulgar, that its original and proper meaning is lost. With regard to the phenomena of nature, the important end of knowing their causes, is, that we may know when to expect them, or how to bring them about. This is very often of real importance in life; and this purpose is served, by knowing what, by the course of nature, goes before them and is connected with them; and this, therefore, we call the cause of such a phenomenon. If a magnet be brought near to a mariner's compass, the needle, which was before at rest, immediately begins to move, and bends its course towards the magnet, or perhaps the contrary way. If an unlearned sailor is asked the cause of this motion of the needle, he is at no loss for an answer. He tells you it is the magnet; and the proof is clear; for, remove the magnet, and the effect ceases; bring it near, and the effect is again produced. It is, therefore, evident to sense, that the magnet is the cause of this effect. A Cartesian philosopher enters deeper into the cause of this phenomenon. He observes, that the magnet does not touch the needle, and therefore can give it no impulse. He pities the ignorance of the sailor. The effect is produced, says he, by magnetic effluvia, or subtile matter, which passes from the magnet to the needle, and forces it from its place. He can even show you, in a figure, where these magnetic effluvia issue from the magnet, what round they take, and what way they return home again. And thus he thinks he comprehends perfectly how, and by what cause, the motion of the needle is produced. A Newtonian philosopher enquires what proof can be offered for the existence of magnetic effluvia, and can find none. He therefore holds it as a fiction, an hypothesis; and he has learned that hypotheses ought to have no place in the philosophy of nature. He confesses his ignorance of the real cause of this motion, and thinks that his business as a philosopher is only to find from experiment the laws by which it is regulated in all cases. These three persons differ much in their sentiments with regard to the real cause of this phenomenon; and the man who knows most is he who is sensible that he knows nothing of the matter. Yet all the three speak the same language, and acknowledge that the cause of this motion is the attractive or repulsive power of the magnet. What has been said of this, may be applied to every phenomenon that falls within the compass of natural philosophy. We deceive ourselves, if we conceive that we can point out the real efficient cause of any one of them. The grandest discovery ever made in natural philosophy, was that of the law of gravitation, which opens such a view of our planetary system, that it looks like something divine. But the author of this discovery was aware that he discovered no real cause, but only the law or rule according to which the unknown cause operates. Natural philosophers, who think accurately, have a precise meaning to the terms they use in the science; and when they pretend to show the cause of any phenomenon of nature, they mean by the cause a law of nature of which that phenomenon is a necessary consequence. The whole object of natural philosophy, as Newton teaches, is reducible to these two heads: first, by just induction from experiment and observation, to discover the laws of nature; and then to apply those laws to the solution of the phenomena of nature. This was all that this great philosopher attempted, and all that he thought attainable. And this indeed he attained in a great measure, with regard to the motions of our planetary system, and with regard to the rays of light. But supposing that all the phenomena, which fall within the reach of our senses, were accounted for from general laws of nature, justly deduced from experience; that is, supposing natural philosophy brought to its utmost perfection, it does not discover the efficient cause of any one phenomenon in nature. The laws of nature are the rules according to which the effects are produced; but there must be a the effect ceases; bring it near, and the effect is again produced. It is, therefore, evident to sense, that the magnet is the cause of this effect. A Cartesian philosopher enters deeper into the cause of this phenomenon. He observes, that the magnet does not touch the needle, and therefore can give it no impulse. He pities the ignorance of the sailor. The effect is produced, says he, by magnetic effluvia, or subtile matter, which passes from the magnet to the needle, and forces it from its place. 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cause which operates according to these rules. The rules of navigation never navigated a ship. The rules of architecture never built a house. Natural philosophers, by great attention to the course of nature, have discovered many of her laws, and have very happily applied them to account for many phenomena: but they have never discovered the efficientcause of any one phenomenon; nor do those who have distinct notions of the principles of the science make any such pretence. Upon the theatre of nature we see innumerable effects, which require an agent endowed with active power; but the agent is behind the scene. Whether it be the Supreme Cause alone, or a subordinate cause or causes; and if subordinate causes be employed by the Almighty, what their nature, their number, and their different offices may be, are things hid, doubtless for wise reasons, from the human eye.

Cause, in medical language. The cause of a disease is defined by Galen to be that during the presence of which we are ill, and which being removed the disorders immediately cease. The doctrine of the causes of diseases is called etiology. Physicians divide causes into procatarctic, proximate, and remote.

Cause, procatarctic, *αιτια προκαταρκτικα*, or primitive incipient, is either an occasion which of its own nature does not beget a disease, but happening on a body inclined to diseases occasions a fever, gout, &c. (such as watching, fasting, and the like), or an evident and manifest cause which immediately produces the disease, as being sufficient thereto; such as a sword in respect of a wound.

Cause, proximate, that principle in the body, which being present, the disease is also present; or, which being removed, the disease is taken away; such as the stone in a nephritic patient, the virus of the small pox, syphilis, &c.

Cause, remote, predisponent, or antecedent, *αιτια προηγουμενη*, a latent disposition of the body, from whence some disease may arise; such as a plethora in respect of a fever, or cacochymia in respect of a scurvy.

Causeway, Devil's, a famous road of stones and rubbish, which ranges through the county of Northumberland, commonly supposed to be Roman.

Causeway, Giant's, a huge pile of Basaltic columns in Antrim, Ireland. See Basaltes, and Giant's Causeway.

CA'USEY, or } Fr. *chaussée*; Ital. *calzata*;
Ca'useway, *n.* } Scot. *calsey*; Mid. Lat. *calceata*. A raised, paved path; a path elevated above the rest of the ground. Causeway is an incorrect spelling.

To Shuppim the lot came forth westward by the *causey*. 1 *Chron.* xxvi. 16.

The other way Satan went down,
The *causeway* to hell-gate. *Milton.*

But that broad *causey* will direct your way.
And you may reach the town by break of day.
Dryden.

Whose *causeway* parts the vale with shady rows?
Whose seats the weary traveller repose? *Pope.*

CAUSTIC Curve, in the higher geometry, a curve formed by the concourse or coincidence of the rays of light reflected from some other curve.

CA'USTICAL, *adj.* } Fr. *caustique*; Lat.
Causti'city, *n.* } *causticus*; καυστικος. That
Ca'ustick, *n.* & *adj.* } which can burn. A
Ca'ustickness, *n.* } burning application. It usually designates a chemical preparation intended to destroy some part of the flesh; figuratively, a bitter, sarcastic speaker.

If extirpation be safe, the best way will be by *caustical* medicines, or escaroticks. *Wiseman's Surg.*

I proposed eradicating by escaroticks, and began with a *caustic* stone. *Id.*

Air too hot, cold, and moist, abounding perhaps with *caustic*, astringent, and coagulating particles.
Arbuthnot.

It was a tenderness to mankind, that introduced corrosives and *caustics*, which are indeed but artificial fires. *Temple.*

The piercing *caustics* ply their spiteful power,
Emetics ranch, and keen cathartics scour. *Garth.*

Causticity, a quality belonging to several substances, by the acrimony of which the parts of living animals may be corroded and destroyed. Bodies which have this quality, when taken internally, are true poisons. The causticity of some of these, as of arsenic, is so deadly, that even their external use is proscribed by most physicians. Several others, as nitrous acid, lapis infernalis or lunar caustic, common caustic, and butter of antimony, are daily and successfully used to consume fungous flesh, to open issues, &c. They succeed very well when properly employed and skilfully managed.

Caustics are generally divided into four sorts; the common stronger caustic, the common milder caustic, the antimonial caustic, and the lunar caustic. See Causticity, Chemistry, and Pharmacy.

CA'UTEL, *n.* } Old Fr. *cautelle*, *cau-*
Ca'utelous, *adj.* } *teleux*, *cauteller*; Lat.
Ca'utelously, *adv.* } *cautus*. 'Cautelle,' says
Ca'utelousness, *n.* } Sherwood, 'a wile, cau-
Ca'utelty, *n.* } telle, sleight; a crafty reach or fetch; guileful devise or endeavour; also craft, subtiltie, trumperie, deceit, cousenage. Cauteller, to deceive, beguile, cousen, overreach.' These definitions are so full, that it is unnecessary to say more in addition, than that cautel sometimes was used in the sense of a caution. Cautelous and cautelously had, also, in former times, an innocent as well as a sinister meaning; they stood for cautious, wary, provident.

Of themselves, for the most part, they are so *cautelous* and wily-headed, especially being men of so small experience and practice in law matters, that you would wonder whence they borrow such subtilties and sly shifts. *Spenser on Ireland.*

Perhaps he loves you now,
And now no soil of *cautel* doth besmirch
The virtue of his will. *Shakspeare.*

Your son
Will or exceed the common, or be caught
With *cautelous* baits and practice. *Id.*

Palladio doth wish, like a *cautelous* artisan, that the inward walls might bear some good share in the burden. *Wotton.*

All pretorian courts, if any of the parties be laid asleep, under pretence of a retirement, and the other

party doth cautelously get the start and advantage; yet they will set back all things in statu quo prius.
Bacon.

The Jews, not resolved of the sciatica side of Jacob, do *cautelously*, in their diet, abstain from both.
Browne.

CA'UTERIZE, *v.*
CAUTERIZA'TION, *n.*
CA'UTERIZING, *n.*
CA'UTERISM, *n.*
CA'UTERY, *n.*

Fr. *cauteriser*; Lat. *cauterium*; *καυτηριον*. To cauterise is to burn the flesh with a hot iron, which is called the actual cautery, or with some chemical caustic, which is denominated the potential cautery. Cauterising signifies burning with a cautery. Cauterism is the application of cautery.

For each word a blister, and each false
Be as a *cauterizing* to the root o' th' tongue,
Consuming it with speaking. *Shakspeare.*

No marvel though cantharides have such a corrosive and *cauterizing* quality; for there is not one other of the insecta but is bred of a duller matter.
Bacon's Natural History.

In heat of fight it will be necessary to have your actual *cautery* always ready; for that will secure the bleeding arteries in a moment. *Wiseman's Surgery.*

The design of the *cautery* is to prevent the canal from closing; but the operators confess that, in persons *cauterized*, the tears trickle down ever after.
Sharp's Surgery.

CAUTERISATION, in medicine, the art of burning flesh. In some places they cauterise with burning tow, in others with cotton or moxa, in others with live coals; some use Spanish wax, others pyramidal pieces of linen, others gold or silver; Severinus recommends flame blown through a pipe; but what is usually preferred among us is a hot iron. Cauterising irons are of various figures: some flat, others round, some curved, &c. of all which we find draughts in Albucasis, Scultetus, Ferrara, and others. Sometimes a cautery is applied through a capsula, to prevent any terror from the sight of it. This method was invented by Placentinus, and described by Scultetus. In the use of all cauteries, care is to be taken to defend the neighbouring parts, either by a lamina, defensive plaster, or lint moistened in oxycrate. Sometimes the hot iron is transmitted through a copper canula, for the greater safety of the adjoining parts. The degrees and manners of cauterising are varied according to the nature of the disease and the part affected.

CAUTERY, in surgery, a medicine for burning, eating, or corroding any solid part of the body. See PHARMACY.

CA'UTION, *v.* & *n.*
CA'UTIONAL, *adj.*
CA'UTIONARY, *adj.*
CA'UTIOUS, *adj.*
CA'UTIOUSLY, *adv.*
CA'UTIOUSNESS, *n.*

Fr. *caution*; It. *cauto*; Span. *caucion*; Lat. *cautio*. The verb signifies to warn; to apprise of a danger. The noun bears the various meanings of wariness; provident care to avert danger or evil; security for and against; a provisionary precept; warning. Cautionary is a pledge given as a security; and, also, a hint of something to be avoided.

Such conditions, and *cautions* of the condition, as might assure with as much assurance as worldly matters bear. *Sidney.*

The Cedar, upon this new acquest, gave him part of Baccharia for *caution* for his disbursements.
Howell.

I could not but approve their generous constancy and *cautiousness*. *King Charles.*

The parliament would yet give his majesty sufficient *caution* that the war should be prosecuted.
Clarendon.

I am made the *cautionary* pledge,
The gage and hostage of your keeping it.
Southerne.

They know how fickle common lovers are;
Their oaths and vows are *cautiously* believed;
For few there are but have been once deceived.
Dryden.

In despite of all the rules and *cautions* of government, the most dangerous and mortal of vices will come off. *L'Estrange.*

How shall our thought avoid the various snare:
Or wisdom to our *cautioned* soul declare
The different shapes thou pleasest to employ,
When bent to hurt, and certain to destroy? *Prior.*

Attention to the forementioned symptoms affords the best *cautions* and rules of diet, by way of prevention. *Arbuthnot.*

We should always act with great *cautiousness* and circumspection, in points, where it is not impossible that we may be deceived. *Addison.*

Is there no security for the island of Britain? Has the enemy no *cautionary* towns and sea-ports to give us for securing trade? *Swift.*

Be *cautious* of him; for he is sometimes an inconstant lover, because he hath a great advantage. *Id.*

To flutter here, to flutter there, on wing;
To talk, to tease, to simper or to sing.
To prude it, to coquette it,—him to trust,
Whose vain, loose life should *caution*, or disgust. *Id.*

This shall direct thy *cautious* tread aright,
Though not one glaring lamp enliven night. *Gay.*

For youth alas, nor *cautious* age,
Nor strength, nor speed, eludes their rage.
Beattie.

There is a courageous wisdom: there is also a false reptile prudence, the result not of *caution* but of fear.
Burke.

'Life's a poor player.'—Then, 'play out the play,
Ye villains!' and above all keep a sharp eye,
Much less on what you do than what you say;
Be hypocritical, be *cautious*, be
Not what you seem, but always what you see.
Byron's Don Juan.

CAUVERY, or CAVERY, a noble river of Hindostan, in the province of Tanjore, which rises near the coast of Malabar, among the Coory hills, and passing through the Mysore, near Seringapatam, below the Ghauts, falls into the sea by several mouths, after a course of nearly 400 miles. The island of Seringham is opposite to Trichinopoly, formed by it.

To CAW, *v. n.* A word imitative of the sound. To cry as the raven, or crow: a term of reproach.

Russet-pated choughs, many in sort,
Rising and *cawing* at the gun's report.
Shakspeare.

A walk of aged elms, so very high, that the rooks and crows upon the tops seem to be *cawing* in another region. *Addison.*

The rook, who high amid the boughs,
In early spring, his airy city builds,
And ceaseless *caws*. *Thomson's Spring.*
Cawing rooks, and kites that swim sublime
In still repeated circles, screaming loud,

ae.
oper.

ching,

n *Juan.*
, South
of Jaen,
f Trux-
uth-east
t by that
of Luya,
in length,
d 108 in
eighth de-
ce is much
Cordillera;
ibits an epi-
e earth, from
inds of fruit
ates are there-
in cattle and
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oc and Sondor,
as Bueno; and
ha, belonging at
Saracbaga. The
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undergo the ope-
r and gold mines
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gayoc, in the neigh-
those of Caxamarca
n the shores of the
falls into the Mara-
places (lavaderos), of
f the province, where
cellent bark trees are
s about 50,000.
l, is well supplied with
ead, grain, vegetables,
ary of life; cheese and
the latter, a fresh supply
ountry every day. Fine
from the valleys, such as
marrow, chirimoyas, and
rly from that part called
the road to Chachapoyas
It carries on a consider-
mbayeque and other places
ing them with the different
l articles; such as baizes,
a kind of coarse cloth, blan-
yos, &c. and receiving in re-
nufactures, soap, sugar, cocoa,
igo, hierba de Paraguay, salted
c. The inhabitants of the in-
r as to a kind of mart, for the
g their own produce and manu-
r purchasing others which they
ome of the shops are well stored
goods. Caxamarca is interesting
f Peru, as being the residence of
emperor Atahualpa, the last of

the Peruvian incas, when the celebrated Pizarro landed at Tumpai, near the mouth of the Guayaquil. Here are still shown a large room, part of the old palace, and the residence of the cacique Astopilco, where this ill-fated monarch was kept a prisoner for the space of three months, or from the first day of his meeting Pizarro to the day on which he was murdered by order of that general; and in this room is the mark which he made on the wall, promising to fill it to that height with silver and gold as a ransom. In the chapel belonging to the common gaol, which was formerly part of the palace, the altar stands on the stone on which Atahualpa was placed by the Spaniards and strangled, and under which he was buried. Near the fountain in the plasa are also visible the foundation stones of the small battery erected by Pizarro, in the front of which Valverde delivered his famous harangue to the inca, and whence he commanded the Spanish soldiers to massacre the Indians. About a league from the city are the baths where the inca was living when Pizarro arrived; the one on the right hand is called the bath of the inca. The present population of this city is about 12,000. See *Mr. Stephenson's Twenty Years' Residence in South America*, vol. ii.

CAXAMARQUILLA, PATAZ, or PATA, a town and province of Peru, bounded on the east by the mountainous Indian country, on the north-east and north by the province of Chachapoyas, on the west and north-west by the river Amazons, here called the Tunguragua, which separates it from the provinces of Caxamarca, Guamachuco, and Conchucos; and on the south by that of Huamalies. It is seventy-eight miles long from north to south, and eighteen wide. From the east boundary of this province flow the principal tributary streams of the Amazons. It is of very diversified temperature, but, in the warm and temperate regions, very productive in wheat, maize, bark, potatoes and sugar. There are also some gold and silver mines in the province. Population about 8,000. This is likewise the name of several small settlements of Peru. The capital is in latitude 7° 36′ S.

CAXATAMBO, a mountainous and cold province of Peru, bounded on the north by the province of Huailas, or Guailas, on the north-east by that of Conchuios, on the east by that of Huamalies, or Guamalies, on the south-east by that of Tarma, on the south by that of Chancay, and on the north-west by that of Santa. It is 100 miles from north-east to south-west, and about the same extent from north-west to south-east. It produces grain and cochineal, and abounds in cattle, seeds, and fruits, and still more in sheep, from the fleece of which its inhabitants manufacture a cloth peculiar to the province. Caxatambo, the chief town, is in lat. 10° 27′ S.

CA'XON, *n.* A burlesque appellation of a wig.

> The nuptials to grace, came from every quarter
> The worthies of Rag Fair, old *caxons* who barter;
> Who the coverings of judges and counsellors' nobs,
> Cut down into majors, queus, scratches, and bobs.
> *Huddesford.*

CAXON, in metallurgy, a chest of ores of silver, or any other metal that has been burnt, ground, and washed, and is ready to be refined.

CAXTON (William), commonly known as the first English printer, as, although Corsellis brought wooden types from Haerlem, yet Caxton was the first who used fusile types in England. He was born in Kent about the year 1412, and was apprenticed to a mercer of London. On his master's death, he was appointed agent for that company in the Low Countries, and was also employed, together with R. Whitehall, Esq. by Edward IV. to conclude a commercial treaty with the duke of Burgundy. During his residence in Flanders he acquired a knowledge of the new invention of printing, and the first book he executed was the Recuyell of the History of Troy, translated by himself from the French, 1471. On his return to England, he set up a press near Westminster Abbey, and the first book there printed was, as far as can be ascertained, the Game of Chesse. In the Bodleian library there is a copy of Æsop's Fables, printed by Caxton, which is believed to be the first book which has its leaves numbered. After living to upwards of eighty, he died in 1494.

CAYANG, in botany, a leguminous plant, cultivated in the Mogul dominions for food. It is a kind of coarse pulse; of which the Europeans use great quantities on ship-board in the East Indies. It is a species of the cytisus.

CAYENNE, an island of French Guiana, South America, about eighteen miles in length from north to south, and ten miles broad. It is separated from the main land of Guiana by the river Cayenne, and the Ouya. The soil towards the north is fertile and pleasant, but southward the country is flat, and abounds in marshy meadows, which are inundated periodically. Horses, cattle, goats, and sheep, abound every where. This island is well known to have given name to the pepper capsicum minimum which is now obtained, however, both in the East and West Indies. This island was first settled by the French in 1625, and abandoned by them in 1654, when the English took possession of it, and were in their turn, compelled to leave it in 1664. The Dutch seized it in 1676, but it was recovered by France in the following year, and, though it capitulated to the British in 1809, was confirmed to its old masters at the peace of Paris in 1814. The north point is in 5° 0 N. lat., and long. 52° 15' W.

CAYENNE, the capital, stands on the north shores of the island, and is defended by the fort San Louis. The harbour is convenient, though small, and the town, built in the form of a regular hexagon, contains about 200 houses.

CAYLLAC, a sweet scented wood which grows in Siam; the Siamese and Chinese burn it in their temples.

CAYLUS (Count de), Marquis de Sternay, baron de Bransac, was born at Paris 1692. He entered into the corps of the mousquetaires; and in his first campaign, in 1709, he distinguished himself by his valor in such a manner, that Louis XIV. commended him before all the court. Upon the peace of Rastadt he travelled into Italy, and after a year's absence returned to Paris, and quitted the army. He then set out for the Levant, arrived at Smyrna, visited the ruins of Ephesus, and travelled through a great part of Europe and Asia. The Academy of Painting and Sculpture adopted him an honorary member in 1731; the academy of Belles Lettres conferred on him a similar honor in 1742. A fortunate accident soon after furnished him with the means of showing the composition and the coloring of the pictures of ancient Rome. The colored drawings which the famous Bartoli had taken there from antique pictures, fell into his hands. He had them engraved; and, before he enriched the French king's cabinet with them, he gave a beautiful edition of them at his own expense. Amidst his researches, nothing afforded him so much pleasure as his discovery of encaustic painting. A description of Pliny's, but too concise to give a clear view of the matter, suggested the first idea of it. He availed himself of the skill of Dr. Magault, a celebrated chemist of Paris, and by repeated experiments found out the secret of incorporating wax with divers tints and colors, and of making it obedient to the pencil. Pliny mentions two kinds of encaustic painting practised by the ancients; one performed with wax, and the other upon ivory, with hot punches of iron. It was the former that count Caylus had the merit of reviving; and M. Muntz afterwards made many experiments to carry it to perfection. In the hands of count Caylus, literature and the arts lent each other mutual aid. He published about forty dissertations in the Memoirs of the Academy of Belles Lettres, and founded a prize of 500 livres, the object of which is to explain, by means of authors and monuments, the usages of ancient nations. That he might enjoy with the whole world the treasures he had collected, he caused them to be engraved, and gave a learned description of them in a work which he embellished with 800 plates. To him the world is also indebted for that magnificent work, the Description of the Gems in the Royal Cabinet He died in September 1765. His monument, in the chapel of St. Germain l'Auxerrois, is perfectly the tomb of an antiquary. It was an ancient sepulchral antique, of the most beautiful porphyry, with ornaments in the Egyptian taste. From the moment he procured it, he had destined it to grace the place of his interment.

CAYMAN, in zoology, a species of alligator, found in the southern parts of America, and on the coast of Guinea. This animal is the scourge and terror of all the large rivers of South America. Their boldness is such that a cayman has been known to come into the centre of an assembly of people in a public walk, seize a full grown man and drag him into the bed of the river for food. This happened once at Angustura in the presence of the governor and several other persons. The following account of catching the cayman we quote from the Travels of Mr. Waterton in 1824. Having baited a large book with meat, they waited till one of these animals swallowed the bait, and they then had to pull him up and secure him. 'If you pull him up,' say the Indians, 'as soon as he sees you on the brink of the river, he will run at you and destroy you.' 'Never mind,' says our traveller, 'pull away, and leave the rest to me.'

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And accordingly he placed himself upon the shore, with the mast of the canoe in his hand, ready to force it down the throat of the crocodile as soon as soon as he made his appearance.

'By the time the cayman was within two yards of me, I saw, says Mr. Waterton, he was in a state of fear and perturbation. I instantly dropped the mast, sprung up and jumped upon his back, turning half round as I vaulted, so that I gained my seat with my face in a right position. I immediately seized his fore legs, and, by main force, twisted them on his back; thus they served me for a bridle.

'He now seemed to have recovered from his surprise, and probably fancying himself in hostile company, he began to plunge furiously, and lashed the sand with his long and powerful tail. I was out of reach of the strokes of it, by being near his head. He continued to plunge and strike, and made my seat very uncomfortable. It must have been a fine sight for an unoccupied spectator.

'The people roared out in triumph, and were so vociferous, that it was some time before they heard me tell them to pull me and my beast of burden farther inland. I was apprehensive the rope might break, and then there would have been every chance of going down to the regions under water with the cayman. That would have been more perilous than Arion's marine morning ride:—

> Delphini insidens, vada cœrula sulcat Arion.

'The people now dragged us above forty yards on the sand, it was the first and last time I was ever on a cayman's back. Should it be asked how I managed to keep my seat, I would answer, I hunted some years with Lord Darlington's fox hounds.'

CAYSTER, or Caystrus, in ancient geography, a river of Ionia, whose mouth Ptolemy places between Colophon and Ephesus; commended by the poets for the number of its swans. Its source was in the Montes Cilbiani.

CAYUGA, a river of North America, which falls into the Lake Erie on the south shore, about forty miles east of the mouth of Huron. Its mouth is capable of being navigated by sloops from the lake.

Cayuga Lake is in the state of New York and county of Onondaga. It extends north and south to the length of thirty-eight miles, its breadth varies from one to four miles, and its shore is very irregular. The north point is twenty-five miles south of lake Ontario. This lake freezes in winter about six or eight miles above the outlet; remaining open in the deeper parts. Lat. of the North Point 42° 28′ N. long. 76° 42′ W.

Cayuga is also in the state of New York, and was erected into a separate county in 1799. Its form is irregular. On the north, where it is narrow, it is bounded by Lake Ontario, east by Onondaga and Cortlandt counties, south by Tioga county, west by Seneca county. Its greatest length north and south is seventy miles; its greatest width is twenty miles. The whole area, which is broken and hilly, is computed at 845 square miles, or 540,800 acres. Calcareous petrifactions are frequent here, and salt springs are found, and wrought to a considerable exte also good limestone. The manufactures are woollen, linen, and cotton cloths. The county has also several flourishing iron works, distilleries and tanning establishments; it sends three members to Congress.

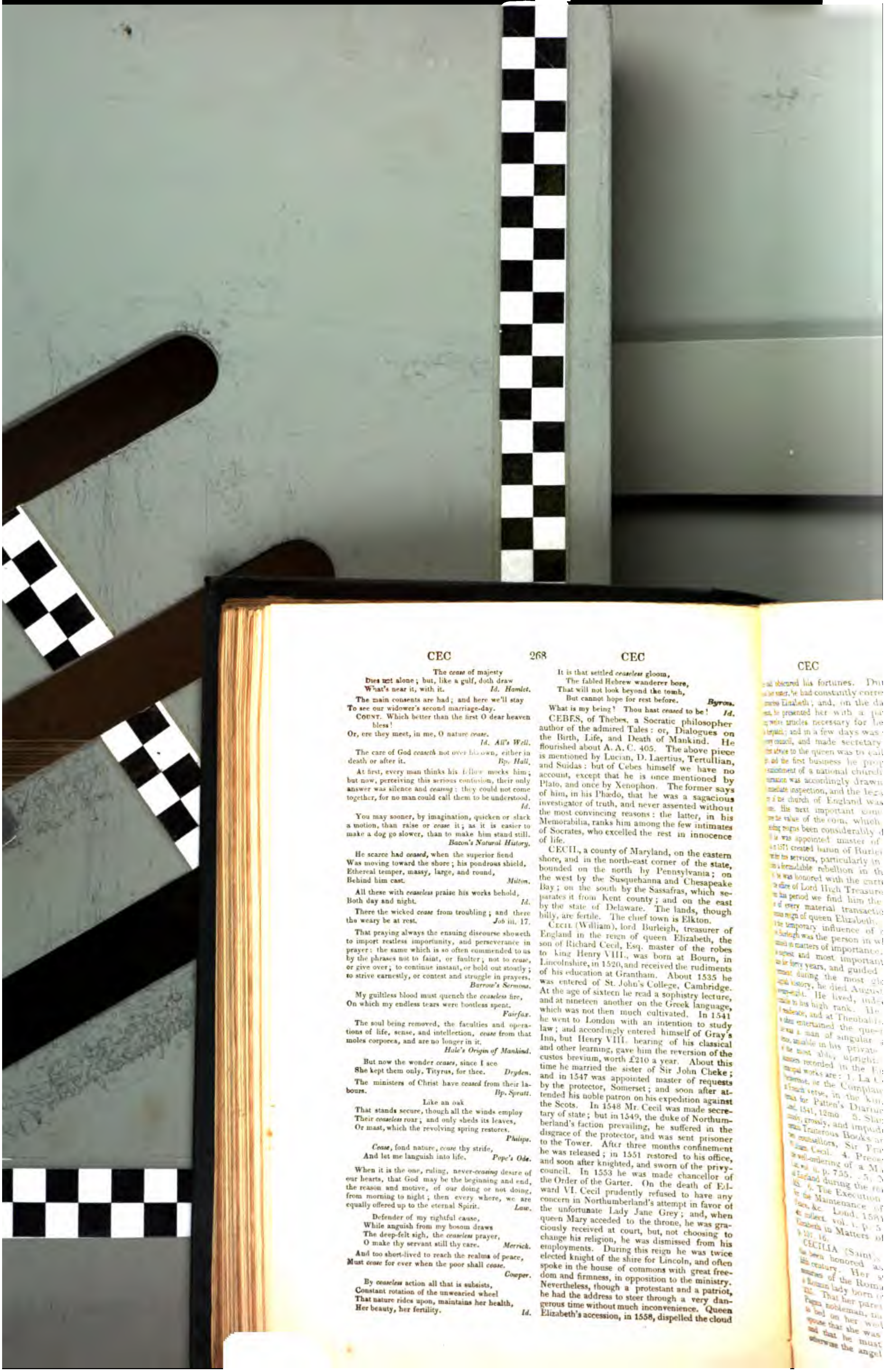
CAZIQUE, Cacique. See Cacique.

CEANOTHUS, New Jersey Tea, in botany, a genus of the monogynia order, and pentandria class of plants; natural order forty-third, dumosæ: cal. quinquepartite; petals five, pouched and arched: fruit a dry, trilocular, and trispermous berry. There are ten species, of which the most remarkable is the C. Americanus, a native of most parts of North America, from whence the seeds have been imported into Europe. In England this plant seldom rises more than three feet high. The stem, which is of a pale brown color, sends out branches from the bottom. These are thin, flexible, and of a reddish color, which has occasioned this tree to be called red twig. The leaves stand on reddish pedicles, about half an inch in length. They are oval, serrated, pointed, about two inches and a half long, are proportionably broad, and have three nerves running lengthwise. The flowers grow at the ends of the twigs in clusters: they are of a white color, and when in blow give the shrub a most beautiful appearance. Indeed, it seems to be almost covered with them, as there is usually a cluster at the end of nearly every twig: and the leaves which appear among them serve as ornaments only. This tree blows in July; and the flowers are succeeded by small brownish fruit, in which the seeds sometimes ripen in England. It is propagated by layers; or from seeds sown in pots of compost, consisting of two parts of virgin earth well tempered and one part sand, about a quarter of an inch deep. The young seedlings must be defended from extreme cold in winter, as well as from the parching drought in summer. The best time of layering is in summer, just before they begin to flower: At that time lay the tender twigs of the spring shoots in the earth, and nip off the end which would produce the flowers. Within fifteen months some of them will be rooted.

CEASE, *n.*, *v. n.* & *a.* Ce'aseing, *n.* Ce'aseless, Ce'aselessly.	Fr. *cesser*; Lat. & Ital. *cessare*; from *cedo*, to give place, give ground, retreat.

To stop, to quit, to leave, to depart from, to desist from being or doing; to put an end to; to discontinue; to decease, to die. It is followed by *from* before a noun.

> Therefore for Christ suffride in fleisch, be ye also aarmed bi the same thenking. for he that suffride in fleische *ceesside* fro synnes.
>
> *Wicklif's New Test.* 2 Pet. iv.
>
> Evermore joie ghe, withoute *ceesyng* preie ghe.
>
> *Id.* 1 Thess. v.
>
> Wash you, make you cleane: take away the euill of your workes from before mine eyes: *cease* to do euill. *Breeches Bible.* Isai. i.
>
> Get on your cloak, and haste you to lord Timon
> Importune him for my monies; be not *ceased*
> With slight denial. *Shakspeare. Timon of Athens.*
>
> *Cease* to persuade, my loving Proteus;
> Home-keeping youth have ever homely wits.
> *Id. Two Gentlemen of Verona.*



The *cease* of majesty
Dies not alone; but, like a gulf, doth draw
What's near it, with it. *Id. Hamlet.*

The main consents are had; and here we'll stay
To see our widower's second marriage-day.
COUNT. Which better than the first O dear heaven
bless!
Or, ere they meet, in me, O nature *cease*.
Id. All's Well.

The care of God *ceaseth* not over his own, either in death or after it. *Bp. Hall.*

At first, every man thinks his fellow mocks him; but now, perceiving this serious confusion, their only answer was silence and *ceasing*: they could not come together, for no man could call them to be understood. *Id.*

You may sooner, by imagination, quicken or slack a motion, than raise or *cease* it; as it is easier to make a dog go slower, than to make him stand still. *Bacon's Natural History.*

He scarce had *ceased*, when the superior fiend
Was moving toward the shore; his pondrous shield,
Ethereal temper, massy, large, and round,
Behind him cast. *Milton.*

All these with *ceaseless* praise his works behold,
Both day and night. *Id.*

There the wicked *cease* from troubling; and there the weary be at rest. *Job* iii. 17.

That praying always the ensuing discourse showeth to import restless importunity, and perseverance in prayer: the same which is so often commended to us by the phrases not to faint, or faulter; not to *cease*, or give over; to continue instant, or hold out stoutly; to strive earnestly, or contest and struggle in prayers. *Barrow's Sermons.*

My guiltless blood must quench the *ceaseless* fire,
On which my endless tears were bootless spent.
Fairfax.

The soul being removed, the faculties and operations of life, sense, and intellection, *cease* from that moles corporea, and are no longer in it. *Hale's Origin of Mankind.*

But now the wonder *ceases*, since I see
She kept them only, Tityrus, for thee. *Dryden.*

The ministers of Christ have *ceased* from their labours. *Bp. Spratt.*

Like an oak
That stands secure, though all the winds employ
Their *ceaseless* roar; and only sheds its leaves,
Or mast, which the revolving spring restores.
Philips.

Cease, fond nature, *cease* thy strife,
And let me languish into life. *Pope's Ode.*

When it is the one, ruling, never-*ceasing* desire of our hearts, that God may be the beginning and end, the reason and motive, of our doing or not doing, from morning to night; then every where, we are equally offered up to the eternal Spirit. *Law.*

Defender of my rightful cause,
While anguish from my bosom draws
The deep-felt sigh, the *ceaseless* prayer,
O make thy servant still thy care. *Merrick.*

And too short-lived to reach the realms of peace,
Must *cease* for ever when the poor shall *cease*.
Cowper.

By *ceaseless* action all that is subsists,
Constant rotation of the unwearied wheel
That nature rides upon, maintains her health,
Her beauty, her fertility. *Id.*

It is that settled *ceaseless* gloom,
The fabled Hebrew wanderer bore,
That will not look beyond the tomb,
But cannot hope for rest before. *Byron.*
What is my being? Thou hast *ceased* to be! *Id.*

CEBES, of Thebes, a Socratic philosopher author of the admired Tales: or, Dialogues on the Birth, Life, and Death of Mankind. He flourished about A. A. C. 405. The above piece is mentioned by Lucian, D. Laertius, Tertullian, and Suidas: but of Cebes himself we have no account, except that he is once mentioned by Plato, and once by Xenophon. The former says of him, in his Phædo, that he was a sagacious investigator of truth, and never assented without the most convincing reasons: the latter, in his Memorabilia, ranks him among the few intimates of Socrates, who excelled the rest in innocence of life.

CECIL, a county of Maryland, on the eastern shore, and in the north-east corner of the state, bounded on the north by Pennsylvania; on the west by the Susquehanna and Chesapeake Bay; on the south by the Sassafras, which separates it from Kent county; and on the east by the state of Delaware. The lands, though hilly, are fertile. The chief town is Elkton.

CECIL (William), lord Burleigh, treasurer of England in the reign of queen Elizabeth, the son of Richard Cecil, Esq. master of the robes to king Henry VIII., was born at Bourn, in Lincolnshire, in 1520, and received the rudiments of his education at Grantham. About 1535 he was entered of St. John's College, Cambridge. At the age of sixteen he read a sophistry lecture, and at nineteen another on the Greek language, which was not then much cultivated. In 1541 he went to London with an intention to study law; and accordingly entered himself of Gray's Inn, but Henry VIII. hearing of his classical and other learning, gave him the reversion of the custos brevium, worth £210 a year. About this time he married the sister of Sir John Cheke; and in 1547 was appointed master of requests by the protector, Somerset; and soon after attended his noble patron on his expedition against the Scots. In 1548 Mr. Cecil was made secretary of state; but in 1549, the duke of Northumberland's faction prevailing, he suffered in the disgrace of the protector, and was sent prisoner to the Tower. After three months confinement he was released; in 1551 restored to his office, and soon after knighted, and sworn of the privy-council. In 1553 he was made chancellor of the Order of the Garter. On the death of Edward VI. Cecil prudently refused to have any concern in Northumberland's attempt in favor of the unfortunate Lady Jane Grey; and, when queen Mary acceded to the throne, he was graciously received at court, but, not choosing to change his religion, he was dismissed from his employments. During this reign he was twice elected knight of the shire for Lincoln, and often spoke in the house of commons with great freedom and firmness, in opposition to the ministry. Nevertheless, though a protestant and a patriot, he had the address to steer through a very dangerous time without much inconvenience. Queen Elizabeth's accession, in 1558, dispelled the cloud

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which had obscured his fortunes. During the reign of her sister, he had constantly corresponded with princess Elizabeth; and, on the day of her accession, he presented her with a paper containing twelve articles necessary for her immediate despatch; and in a few days was sworn of the privy council, and made secretary of state. His first advice to the queen was to call a parliament; and the first business he proposed was the establishment of a national church. A plan of reformation was accordingly drawn up under his immediate inspection, and the legal establishment of the church of England was the consequence. His next important concern was to restore the value of the coin, which had in the preceding reigns been considerably debased. In 1561 he was appointed master of the wards; and in 1571 created baron of Burleigh as a reward for his services, particularly in having lately stifled a formidable rebellion in the north. In 1501 he was honored with the garter, and raised to the office of Lord High Treasurer of England. From this period we find him the primum mobile of every material transaction during the glorious reign of queen Elizabeth. Notwithstanding the temporary influence of other favorites, lord Burleigh was the person in whom she chiefly confided in matters of importance. Having filled the highest and most important offices of the state for forty years, and guided the helm of government during the most glorious period of English history, he died August 4th, 1598, aged seventy-eight. He lived, indeed, in a manner suitable to his high rank. He had four places of residence, and at Theobalds, his favorite seat, he often entertained the queen at vast expense. He was a man of singular abilities and prudence, amiable in his private character, and one of the most able, upright, and indefatigable ministers recorded in the English annals. His principal works are: 1. La Complainte de l'ame Pecheresse, or the Complaint of a Sinful Soul, in French verse, in the king's library. 2. Materials for Patten's Diarium, exped. Scoticæ. Lond. 1541, 12mo. 3. Slanders and Lies maliciously, grossly, and impudently vomited out, in certain Traiterous Books and Pamphlets, against two counsellors, Sir Francis Bacon, and Sir William Cecil. 4. Precepts or Directions for the well-ordering of a Man's Life, 1634. Harl. Cat. vol. ii. p. 755. . 5. Meditations on the State of England during the reign of Queen Elizabeth, MS. 6. The Execution of Justice in England for the Maintenance of Public and Christian Peace, &c. Lond. 1581, 1583, Somer's Tracts, 4th collect. vol. i. p. 5. 7. Advice to Queen Elizabeth in Matters of Religion and State, ib. p. 101. 16.

CECILIA (Saint), the patroness of music, has been honored as a martyr ever since the fifth century. Her story, as delivered by the notaries of the Roman church, is, that she was a Roman lady born of noble parents about A. D. 235. That her parents married her to a young Pagan nobleman, named Valerianus, who, going to bed on her wedding night, was told by his spouse that she was nightly visited by an angel, and that he must forbear to approach her, otherwise the angel would destroy him. Valerianus desired that he might see his rival the angel, but his spouse told him that was impossible, unless he would consent to become a Christian. This he consented to, and was baptised by Pope Urban I.; after which, returning to his wife, he found her in her closet at prayer, and by her side, the angel in the shape of a beautiful young man, clothed with brightness. After some conversation with the angel, Valerianus told him that he had a brother named Tiburtius, whom he wished to partake of the grace which he himself had received. The angel told him that his desire was granted, and that they should be both crowned with martyrdom in a short time. Upon this the angel vanished, and his prophecy was soon fulfilled. Tiburtius was converted, and he and his brother were beheaded. Cecilia was offered her life if she would sacrifice to the Roman idols, but she refused; upon which she was thrown into a caldron of boiling water; others say that she was stifled in a dry bath, i.e. an enclosure, from whence the air was excluded, having a slow fire underneath. There is a tradition of St. Cecilia, that she excelled in music; and that the angel was drawn from the celestial regions by the charms of her melody. This has been deemed authority sufficient for making her the patroness of music. The above legend has given occasion to painters and sculptors to exercise their genius in representations of her playing on the organ or harp.

CE'CITY *n.* } *Cæcitas*, Lat. blindness;
Cecu'tiency. } or tendency to blindness; privation or cloudiness of sight.

> They are not blind, nor yet distinctly see; there is in them no *cecity*, yet more than a *cecutiency*; they have sight enough to discern the light, though not perhaps to distinguish objects or colors.
>
> *Browne's Vulgar Errours.*

CECROPIA, in botany, a genus of the diandra order and diœcia class of plants, natural order fifty-third, scabridæ. Male, spathe caducous, cunent imbricated with pear-shaped scales: cor. none. Female, germs imbricated: style one: stig. lacerated: seed, a one seeded berry. Species one only, C. pellala, snake wood or trumpet tree, a native of the West Indies and South America.

CECROPS I. and II., kings of Athens. See Attica.

CE'DAR. } Ang.-Sax. *ceder*; Fr. *cedre*;
Ce'darlike. } Lat. *cedrus*; κεδρος, a tree, of
Ce'darn. } which there are various spe-
Ce'drine. } cies. The description will be
Ce'dry. } found under the botanical names. Cedarn and cedrine, the former of which epithets is used in Milton's Comus, signify that which is of, or belonging to, the cedar tree. Evelyn uses the adjective cedry, to express cedar-colored.

> Wherever the bright sun of heaven shall shine,
> His honor, and the greatness of his name
> Shall be, and make new nations: He shall flourish,
> And, like a mountain *cedar*, reach his branches
> To all the plains about him.
>
> *Shakspeare. Henry VIII.*

> Growing gravity, so *cedar-like*. *Ben Jonson.*

He spake of trees, from the *cedar* tree, that is in Lebanon, euen unto the hyssope that springeth out of the wall.—[From the hiest to the lowest note.]
Breeches' Bible, 1 Kings, iv. 33.

There was nothing but white marble without; nothing but *cedar* and gold within. Upon the hill of Sion stands that glittering snowy pile, which both inviteth and dazzleth the eyes of passengers afar off: so much more precious within, as *cedar* is better than stone; gold than *cedar*. *Bp. Hall.*

Hark! his voice in thunder breaks;
Hushed to silence, while he speaks,
* * * * *
See, as louder yet they rise,
Echoing through the vaulted skies,
Loftiest *cedars* lie o'erthrown,
Cedars of steep Lebanon. *Merrick.*

Cedar, in botany. See Juniperus.

Cedar, Bastard. See Theobroma.

Cedar of Busaco. See Cupressus.

Cedar of Lebanon, called by the ancients cedrus magna, or the great cedar; also cedrelate, κεδρελατη. See Pinus.

Cedar, White. See Cupressus.

CEDE, Lat. *cedo, cedere.* To give place; to yield. In modern time applied to the yielding, giving up, or resigning by treaty, some object or place that has been contested. See Cession.

This fertile glebe, this fair domain,
Had well nigh *ceded* to the slothful hands
Of monks libidinous. *Shenstone.*

On the 10th of February (1697) Callieres, in the name of his master, agreed to the following preliminaries:—

'That Dinant should be *ceded* to the Bishop of Liege, and all reunion since the treaty of Nimeguen be made void: that the French king should make restitution of Lorraine, and, upon conclusion of the peace, acknowledge the prince of Orange as king of Great Britain without condition or reserve.' *Smollett.*

Much of the navigation of 1763 was also owing to the war; this is manifest from the large part of it employed in the carriage for the *ceded* islands, with which the communication still continued open.
Burke.

CEDRELA, in botany, a genus of the monogynia order, in the pentandria class of plants, natural order fifty-fourth, miscellaneæ: cal. withering: cor. quinquepetallous, funnel-shaped, and adhering to the receptaculum, a third of its length: caps. five-celled and five-valved: seed, winged and imbricated downward: species one only, C. novata, a tall tree growing in South America and the West Indies.

CEDRUS, the cedar-tree, mahogany, &c. See Juniperus, and Pinus.

CEFALU, a small city of Sicily, in the vale Demona, anciently called Cephaloedis. It is a bishop's see, and has a strong fort. This town has a considerable fishery, but the harbour will not contain above thirty or forty vessels. Long. 13° 13′ E., lat. 38° 5′ N.

CEIL, *v. a.* } Lat. *cælo*, Fr. *ciel*; *(heaven).*
Ceil'ing, *n.* } This word was written formerly (see below) siel; and is at the present time spelt both ciel, after the French word, (although Cotgrave contends it cannot come from that quarter, the plurals of ciel, heaven, and ciel, a canopy, being different) and ceil. To form the inner covering of a room or building, or to ornament it. 'A ceiled house,' la queatis, Vulg. in the Bible, Haggai i. 4, clearly means a superior and respectable house. The ceiling is the inner covering made.

He sayth I wil build me wide house, and large chambers: so he will make himselfe large windowes, and *sieling* with cedars, and paint them with vermillion. *Breeches' Bible. Jer.* xxii. 14.

Is it time for yourselves to dwell in your *sieled* houses, and this house lie waste. [Shewing that they sought not only their own necessities but their very pleasures before God's honour. Note].
Id. Hag. i. 4.

And he built the walls of the house within with boards of cedar, both the floor of the house, and the walls of the *ceiling*. 1 *Kings* vi. 15.

And now the thickened sky,
Like a dark *ceiling* stood, down rushed the rain
Impetuous. *Milton's Paradise Lost.*

Varnish makes *ceilings* not only shine, but last.
Bacon.

How will he, from his house *ceiled* with cedar, be content with his Saviour's lot, not to have where to lay his head? *Decay of Piety.*

So when the sun by day, or moon by night,
Strike on the polished brass their trembling light,
The glittering species here and there divide,
And cast their dubious beams from side to side:
Now on the walls, now on the pavement play,
And to the *ceiling* flash the glaring day. *Dryden.*

A rude hand may build walls, form roofs, and lay floors, and provide all that warmth and security require, we only call the nicer artificers to carve the cornice, or to paint the *ceilings*. *Johnson's Idler.*

Ceiling, in architecture, the top or roof of a lower room, or a covering of plaster over laths nailed on the bottom of the joists that bear the floor of the upper room; or, where there is no upper room, on joists for the purpose; hence called ceiling joists. Plastered ceilings are almost universal in Britain, more so than in any other country.

CEIMELIA; from κειμαι, to be laid up; in antiquity, precious pieces of furniture or ornaments, reserved for extraordinary occasions and uses. Sacred garments, vessels, &c. are reputed of the ceimelia of a church. Medals, antique stones, figures, MSS. records, &c. are the ceimelia of men of letters.

CELÆNÆ, in ancient geography, the capital of Phrygia Magna, situated on a mountain, at the common sources of the Meander and Marsyas. The king of Persia had a strong palace beneath the citadel, by the springs of the Marsyas, which rose in the market place, and flowed through the city. Cyrus the younger had also a palace there, but by the springs of the Meander which river passed likewise through the city. He had also an extensive park, full of wild beasts, and watered by the Meander, which ran through the middle. Xerxes is said to have built these palaces and the citadel after his return from Greece. Antiochus Soter removed the inhabitants of Celænæ into a city named, from his mother, Apamea; which became afterwards a mart inferior only to Ephesus.

CELANDINE, in botany. See Chelidonium.

Celandine, Lesser. See Ranunculus.

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CELANDINE, in botany. See Chelidonium.

Celandine, Lesser. See Ranunculus.

Celandine Tree. See Bocconia.

CELARENT, among logicians, a mode of syllogism, wherein the major and conclusion are universal negative propositions, and the minor a universal affirmative: e. g.

cE None whose understanding is limited can be omniscient.
LA Every man's understanding is limited,
RENT Therefore no man is omniscient.

CELASTRUS, in botany, the staff tree, a genus of the monogynia order and pentandria class of plants, natural order forty-third, dumosæ: cor. pentapetalous and patent: caps. quinquangular and trilocular: seed, veiled. There are thirty known species, two of which are inured to our climate: viz. 1. C. bullatus, an uncertain deciduous shrub, a native of Virginia, about four feet high, rising from the ground with several stalks, which divide into many branches, and are covered with a brownish bark. 2. C. scandens, or bastard euonymus, with woody, twining stalks, rising by the help of neighbouring trees to twelve feet. In Senegal the negroes use the powder of the root as a specific against gonorrhœas, which it is said to cure in eight, or sometimes in three days. An infusion of the bark of a species of staff tree, which grows in the Isle of France, is said to possess the same virtues.

CELEBES, or Macassar. See Macassar.

CEL'EBRATE, *v.*
Celebra'tion, *n.*
Cele'brious,
Celeb'rity.
} Lat. *celebro*, Fr. *celebrer*, Ital. *celebrare*. To speak of; to praise; to commend; to make famous. That is celebrated which is much spoken of, or distinguished by solemn rites.

> Besides the times which God himself in the law of Moses particularly specified, there were, through the wisdom of the church, certain others devised by occasion of like occurrence to those whereupon the former had arisen; as namely that which Mordecai and Esther did first *celebrate* in memory of the Lord's most wonderful protection, when Haman had laid his inevitable plot, to man's thinking, for the utter extirpation of the Jews, even in one day. *Hooker.*

> The law of God, which appointed them days of solemnity, taught them likewise in what manner the same should be *celebrated*. *Id.*

> He shall conceal it,
> While you are willing it shall come to note;
> What time we will our *celebration* keep,
> According to my birth. *Shakspeare.*

> For (as that worthy man St. Ambrose saith) he is unworthy of the Lord, that otherwise doth *celebrate* that mystery, than it was delivered by him. *Homilies of the Church.*

> On the feast day, the father cometh forth, after divine service, into a large room, where the feast is *celebrated*. *Bacon.*

> The manner of her receiving, and the *celebrity* of the marriage, were performed with great magnificence. *Id.*

> For the grave cannot praise thee; death cannot *celebrate* thee; they that go down into the pit cannot hope for thy truth. *Isaiah* xxxviii. 18.

> This boldness, together with my eminent ignorance, makes him admire the scarcity of learned men in our country, that could find no better Doctors to send to Dort-Conference than Master Hall. To your grief, Sir, it was a synod; and that noble and *celebrious*. *Bishop Hall.*

> It is evident by this, that the custom of the church was not only in *celebration* of the holy communion, but in all her other offices to say this prayer, not only for Christ's Catholic church, but for all the world. *Bishop Taylor.*

> No more shall be added in this place, his memory deserving a particular *celebration*, than that his learning, piety, and virtue, have been attained by few. *Clarendon.*

> By not joining at stated times in *celebration* of divine worship, we may be well conceived wholly to disclaim God, or greatly to disesteem him. *Barrow's Sermons.*

> The Jews, Jerusalem, and the temple, having been always so *celebrious*; yet when, after their captivities, they were despoiled of their glory, even then Assyrians, Greeks, and Romans, honoured with sacrifices the Most High God, whom that nation worshipped. *Grew.*

> This pause of power 'tis Ireland's hour to mourn;
> While England *celebrates* your safe return. *Dryden.*

> The songs of Sion were psalms and pieces of poetry, that adored or *celebrated* the Supreme Being. *Addison.*

> I would have him read over the *celebrated* works of antiquity, which have stood the test of so many different ages. *Id.*

> It has lately been a *celebrated* question in the schools of philosophy, ‘whether the soul always thinks.’ *Johnson's Idler.*

CELERES; from celer, quick; in Roman antiquity, a regiment of body guards belonging to the Roman kings, established by Romulus, and composed of 300 young men, chosen out of the most illustrious Roman families, and approved by the suffrages of the curiæ of the people, each of which furnished ten. The celeres always attended near the king's person, to guard him and to execute his orders. In war they made the van-guard in the engagement, which they always began first; in retreats they made the rear guard. Though they were a body of horse, yet they usually dismounted and fought on foot; their commander was called tribune, or prefect of the celeres. They were divided into three troops of 100 each, commanded by a centurion; their tribune was the second person in the kingdom. Brutus, who overturned the monarchy, was tribune of the celeres.

CELERIACK, in botany, a variety of the apium. See Apium.

CELE'RITY, *n.* קלה, κελλω, to run swiftly. Hence the the Latin celero, to hasten; and celerity, accelerate, acceleration, Eng. speed, swiftness, quickness.

> Forasmuch as that motion is circular whereby we make our divisions of time, and the compass of that circuit such that the heavens, which are therein continually moved and keep in their motions *celerity*, must needs touch often the same points, they cannot choose but bring unto us by equal distances frequent returns of the same times. *Hooker.*

> Cleo. *Celerity* is never more admired
> Than by the negligent.
> Ant. A good rebuke
> Which might have well becomed the best of men
> To taunt at slackness.
> *Shakspeare. Ant. and Cleop.*

> Hence hath offence its quick *celerity*,
> When it is borne in high authority.
> *Id. Measure for Measure*

In desire *celerity* itself is delay. *Bacon.*

Three things concur to make a percussion great; the bigness, the density, and the *celerity* of the body moved. *Digby.*

Whatever encreaseth the density of the blood, even without encreasing its *celerity*, heats, because a denser body is hotter than a rarer.

Arbuthnot on Aliments.

I wondered by what malignant power my peace was blasted, till I discovered at last that I had nothing to do. Time, with all its *celerity*, moves slowly to him whose whole employment is to watch its flight. I am forced upon a thousand shifts to enable me to endure the tediousness of a day.

Johnson.

CELERITY, in mechanics, the swiftness of any body in motion. It is also defined to be an affection of motion, by which any moveable body runs through a given space in a given time.

CELERY, in botany, the English name of a variety of the apium graveolens. See APIUM.

CELE'STIFY, *v.* } Gr. *κοιλον*, *cavern*, hollow; whence *cælum*, *celestes*, Lat. heavens, heavenly. Celestify is to make heavenly; celestial, that which is heavenly, or tending toward heaven, excellent, superior.
CELE'STIAL, *n.*
CELE'STICAL, *adj.*

We should affirm, that all things were in all things, that heaven were but earth terrestrified, and earth but heaven *celestified*, or that each part above had influence upon its affinity below. *Browne's Vulgar Errours.*

There stay until the twelve *celestial* signs
Have brought about their annual reckoning.
Shakspeare.

Play that sad note
I named my knell, whilst I sit meditating
On that *celestial* harmony I go to. *Id.*

You have heard with what constant faith, we should clothe and deck ourselves, that we might be fit and decent partakers of that *celestial* food.

Homilies of the Church.

There are also *celestial* bodies, and bodies terrestrial: but the glory of the *celestial* is one, and the glory of the terrestrial is another. 1 *Cor.* xv. 40.

HOST. Peace, I say; hear mine host of the garter. Am I politic? Am I subtle? Am I a machiavel? Shall I lose my doctor? No; he gives me the potions and the motions. Shall I lose my parson? my priest? my Sir Hugh? No; he gives me the proverbs, and the noverbs. Give me thy hand terrestrial, so: Give me thy hand, *celestial*; so.

Shakspeare's Merry Wives.

If onions and garlic had grown as ripely in tha wilderness, and manna had rained down no where but in Egypt, how would ye have hated those rude and strong sallads, and have run mad for these *celestial* delicates. *Bishop. Hall.*

My warbling lute, the lute I whilom strung,
When to king John of Portugal I sang,
Was but the prelude of that glorious day,
When thou on silver Thames didst cut thy way,
With well-timed oars before the royal barge,
Swelled with the pride of thy *celestial* charge. *Dryden.*

Thus affable and mild the prince precedes,
And to the dome the unknown *celestial* leads. *Pope.*

Celestial powers thy servants are,
Then what can earth to thee compare. *Watts.*

Celestial maid, receive this prayer!
If e'er thy beam divine
Should gild the brow of toiling care,
And bless a hut like mine. *Carter.*

And didst thou not, thy breast to his replying,
Blend a *celestial* with a human heart,
And love, which dies as it was born in sighing,
Share with immortal transports? *Byron.*

CELESTIN, the name of five popes of Rome: of whom the most remarkable was,

CELESTIN V. whose original name was Peter de Meuron. He was born at Ifernia, in Naples, in 1215, of mean parents. He retired, while very young, to a solitary mountain, to dedicate himself to prayer and mortification. The fame of his piety brought several, out of curiosity, to see him; some of whom, charmed with his virtues, renounced the world to accompany him in his solitude. With these he formed a kind of community in 1254; which was approved by pope Urban IV. in 1264, and erected into a distinct order, called the hermits of St. Damien. Peter governed this order till 1286, when his love of solitude and retirement induced him to quit the charge. In July, 1294, the great reputation of his sanctity raised him, though much against his will, to the pontificate. He then took the name of Celestin V. and his order that of Celestins from him. By his bull he approved their constitution, and confirmed all their monasteries, to the number of twenty. But he sat too short a time in the chair of St. Peter to do much for his order; for having governed the church five months and a few days, and considering the great burden he had taken upon him, to which he thought himself unequal, he solemnly renounced the pontificate in a consistory held at Naples; and died in 1269.

CELESTINS, a religious order so called from their founder pope Celestin V. After his death his order made great progress in Italy and France; whither the then general Peter of Tivoli sent twelve religious, at the request of Philip the Fair, who gave them two monasteries; one in the forest of Orleans, and the other in that of Compiegne. This order likewise passed into several provinces of Germany. They had about ninety-six convents in Italy, and twenty-one in France, under the title of priories, before the revolution. The Celestins rise two hours after midnight, to say matins. They eat no flesh except when sick. They fast every Wednesday and Friday, from Easter to the feast of the exaltation of the holy cross; and, from the feast to Easter, every day. Their habit consists of a white gown, a capuche, and a black scapulary. In the choir, and when they go out of the monastery, they wear a black cowl with the capuche: their shirts are of serge.

CELEUMA, or CELEUSMA, from κελευειν, to call; in antiquity, 1. The shout or cry of the seamen, whereby they animated each other in their work of rowing. 2. A kind of song or formula, rehearsed or played by the master or others, to direct the strokes and movement of the mariners, as well as to encourage them to labor.

CELEUSTES, in ancient navigation, the boatswain or officer appointed to give the rowers the signal, when they were to pull, and when to stop.

CE'LIACK, *adj.* Κοιλια, the belly. Relating to the lower belly.

The blood moving slowly through the *celiack* and mesenterick arteries, produces complaints.

Arbuthnot on Aliments.

Gr.
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it the

, that,
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lly have
hop Hall.
an apple,
one.
hop Taylor.
continence,
amnable sin,
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here doth to
elibacy: but I
law had placed
on 1 *Cor.* vii. 9.
l of our nation;
nduct of men in
h women are ex-
ong unmarried, is
s of this nation.
Spectator, No. 528.
o nothing but their
k on *celibacy* as an
are married before
Id.
rry themselves in their
s, parents and children,
dorned the gospel, glo-
a, much more than they
test and strictest *celibacy*.
Atterbury.

ed by Pope Innocent at the
ury; and the *celibacy* of the
y Gregory the Seventh in
d this has been the univer-
he church ever since. Thus
mons and the prohibition of
y hand in hand together.
Bishop Newton.

arriage, from which they can
ppiness, is not presented to every
it, especially in times in which
is in fashion with the men, a fa-
our to enable his daughters to lead
ndependence and decorum. *Paley.*

he ancient Romans very wisely
maginable to discourage celibacy.
ore usual than for the censors to
on bachelors. Dionysius Hali-
mentions an ancient constitution
persons of full age were obliged to
first law of that kind, of which we
certainty, is that under Augustus,
Julia de maritandis ordinibus. It
ards denominated Papin, Poppæa, and
ally Julia Papia, in regard of some
nts made to it under the consuls Papius
pæus. By this law, divers prerogatives
ven to persons who had many children;
s imposed on those who lived a single
that they should be incapable of receiving
s, and not exceeding a certain proportion.
LIBATE is a term chiefly used in speaking
e single life of the popish clergy, or the ob-
tion they are under to abstain from marriage.
this sense we say the law of celibate. Monks
d religious take a vow of celibate; and, what
sometimes very distinct, of chastity. The

church of Rome imposes a universal celibacy on its clergy, from the pope to the lowest subdeacon. The advocates for this usage pretend, that a vow of perpetual celibacy was required in the ancient church as a condition of ordination, even from the earliest apostolic ages. It is generally agreed, however, that most of the apostles were married: some say all of them, except St Paul and St. John. Be this as it may, in the next age after the apostles, we have accounts of many married bishops, presbyters, and deacons. Novatus was a married presbyter of Carthage, as we learn from Cyprian; who himself was also a married man; and so was Cæcilius the presbyter who converted him; and Numidius, another presbyter of Carthage. The Romanists reply to this, that all married persons, when ordained, promised to live separate from their wives by consent, which answered the vow of celibacy in other persons. But this is not only said without proof, but against it. There seems early indeed to have been a tendency towards the introduction of such a law, by one or two zealots; but the motion was no sooner made than it was quashed by the authority of wise men. Thus Eusebius observes, that Pinytus, bishop of Gnossus in Crete, was for imposing the law of celibacy upon his brethren; but Dionysius, bishop of Corinth, wrote to him, that he should consider the weakness of men. In the council of Nice, A. D. 325, the motion was renewed for a law to oblige the clergy to abstain from all conjugal society with their wives, whom they had married before ordination; but Paphnutius, a famous Egyptian bishop, and one who himself was never married, vigorously declaimed against it, upon which it was unanimously rejected. The council in Trullo, held in 692, made a difference in this respect between bishops and presbyters; allowing presbyters, deacons, and all the inferior orders, to cohabit with their wives after ordination; and giving the Romish church a rebuke for the prohibition: but at the same time laying an injunction upon bishops to live separate from their wives, and appointing the wives to betake themselves to a monastic life, or become deaconesses in the church. And thus was a celibate established in the Greek church, but only as to bishops. In the Latin church, the like establishment was also made, but by slow steps in many places. For in Africa, even bishops cohabited with their wives at the time of the council of Trullo.

CELL, *n.*
CE'LLAR,
CE'LLARAGE,
CE'LLULAR, *ad.*
} כלא, *confinement*; whence celo; Lat. *to hide*. A cave or hollow place where things are hidden or concealed: hence a place of retirement or seclusion; and a cellar or storehouse under the ground.

The lyf is more than mete, and the body more than clothing. Behold the crowis: for thei sowen not, neither repen, to which is no *celer*, no berne, and God fedith them, how myche more ye ben of more prys than thei? *Wiclif's New Test. Luke*, xii

Besides, she did intend confession,
At Patrick's *cell* this even; and there she was not
Shakspeare.

HAM. Ha, ha, boy! sayest thou so? art thou there, come on, true-penny?—you hear this fellow in the *cellerage*—consent to swear. *Id. Hamlet*

Mine eyes he closed, but open left the *cell*
Of fancy, my internal sight. *Milton. Par. Lost.*

Then did religion in a lazy *cell*,
In empty, airy contemplations dwell. *Denham.*

The brain contains ten thousand *cells*,
In each some active fancy dwells. *Prior.*

In cottages and lowly cells
True piety neglected dwells;
Till called to heaven, its native seat,
Where the good man alone is great.
Somerville.

How bees for ever, though a monarch reign,
Their separate *cells* and properties maintain. *Pope.*

Let these, by thy inflictions won
The example of his deeds to shun,
(While as from morn to eve they roam,
Some ruined *cell* their casual home,
Each night affords), by hunger led,
Seek at the rich man's gate their bread.
Merrick.

How soft the music of those village bells,
Falling at intervals upon the ear
In cadence sweet, now dying all away,
Now pealing loud again, and louder still,
Clear and sonorous as the gale comes on!
With easy force it opens all the *cells*
Where memory slept. *Cowper.*

Adieu, thou dreary pile, where never dies
The sullen echo of repentant sighs!
Ye sister mourners of each lonely *cell*
Inured to hymns and sorrow, fare ye well!
For happier scenes I fly this darksome grove;
To saints a prison, but a tomb to love. *Sheridan.*

This cave was surely shaped out for the greeting
Of an enamoured goddess, and the *cell*
Haunted by holy love—the earliest oracle! *Byron.*

The urine, insinuating itself amongst the neighbouring muscles, and *cellular* membranes, destroyed four. *Sharp's Surgery.*

The interstices of the *cellular* substance are lubricated and moistened by a serous or watery fluid, poured out from the exhalent arteries, and again taken in by the absorbents. It thus acquires a pliancy and softness, which adapt it particularly to serve as a connecting medium for parts, which have motion on each other. The importance of this property will be best understood by observing the effects of its loss. *Dr. A. Rees.*

Cell is also used for a lesser or subordinate sort of monastery dependent on a great one, by which it was erected, and continues to be governed. The great abbeys in England had most of them cells in places distant from the mother abbey, to which they were accountable, and from which they received their superiors. The alien priories in England were cells to abbeys in Normandy, France, Italy, &c. The name was also given to rich monasteries, not dependent on any other. It signifies also a little apartment, wherein the ancient monks, solitaries, and hermits, lived in retirement. The name is still retained in various monasteries. The dormitory is frequently divided into cells or lodges. The Carthusians have each a separate cell. The hall wherein the Roman conclave is held, is divided, by partitions, into cells, for the cardinals to lodge in.

Cellar differs from vault, as the latter is supposed to be deeper, the former being frequently little below the surface of the ground. Cellars, in modern buildings, are the lowest rooms in a house, the ceilings of which usually lie level with the surface of the ground on which the house is built; or they are situated under the pavement before the house, especially in streets and squares.

CELLARER, or Cellerer, Cellerarius, or Cellarius, an officer in monasteries, to whom belong the care and procurement of provisions for the convent. The cellerarius was one of the four obedientiarii, or great officers of monasteries: under his ordering was the pistrinum or bakehouse, and the bracinum, or brew-house. In the richer houses there were particular lands set apart for the maintenance of his office, called in ancient writings ad cibum monachorum. His whole office in ancient times had a respect to that origin: he was to see his lord's corn got in, and laid up in granaries; and his appointment consisted in a certain proportion thereof, usually fixed at a thirteenth part of the whole, together with a furred gown. The office of cellarer then only differed in name from those of bailiff and minstrel; excepting that the cellarer had the receipt of his lord's rents through the whole extent of his jurisdiction. The cellarer was also an officer in chapters, to whom belonged the care of the temporals, and particularly the distributing of bread, wine, and money, to canons for their attendance in the choir. In some places he was called burser.

CELLARIUM, in antiquity, an allowance of provisions furnished out of the cella, to the governor of the province and his officers, &c. Cellarium differed from penus, as the former was only a store-house for several days, the latter for a long time. Thus the Bactroperatæ are said by St. Jerome to carry cellar about with them.

CELLARIUS (Christopher), was born in 1638, at Smalcalde, in Franconia, where his father was minister. He was successively rector of the colleges at Weymar, Zeits, and Mersebourg; and the king of Prussia having founded an university at Hall, in 1693, he was prevailed on to be professor of eloquence and history there, where he composed the greatest part of his works. His great application to study hastened the infirmities of old age. His works relate to grammar, geography, history, and the oriental languages, and the number of them is amazing. He died in 1707.

CELLEPORÆ, a genus of marine plants, or rather animals; a class of worms in the Linnæan system. They are of the genus of the lythophyta. See Coral.

CELLINI (Benvenuto), an eminent statuary, contemporary with Michael Angelo, and Julio Romano, and was employed by popes, kings, and other patrons of arts and sciences. Some of his productions are much esteemed. He lived to a very considerable old age; and his life, almost to the last, was a continued scene of alternate adventure, patronage, persecution, and misfortune. He wrote his own history, which was not, however, published till 1730, probably on account of the freedom with which he therein treated many distinguished personages of Italy and other countries. It was translated into English by Dr. Nugent, in 1771, to which the reader is referred, as it will not admit of a proper abridgment. He also wrote treatises on goldsmiths' work and on casting statues.

Cellular Interstices, or Cellular Membrane. See Anatomy.

CELOSIA, cocks-comb: a genus of the monogynia order, pentandria class of plants; natural order fifty-fourth, miscellaneæ: cal. triphyllous: cor. five-petalled in appearance: stam. conjoined at the base to the plaited nectarium: caps. gaping horizontally. There are eighteen species, of which the most worthy of notice is the C. cristata, or common cocks-comb, so called on account of its crested head of flowers, resembling a cock's comb; of which there are many varieties. The principal colors of their flowers are red, purple, yellow, and white; but there are some whose heads are variegated with two or three colors. The heads are sometimes divided like a plume of feathers, and are of a beautiful scarlet color. These plants are very tender exotics, and require a great deal of care to cultivate them in this country.

CELSIA, in botany: a genus of the angiospermia order, and tridynamia class of plants; natural order twenty-eighth, luridæ: cal. quinquepartite: cor. wheel-shaped; the filaments bearded or woolly: caps. bilocular. Species, five; two being natives of Candia and the East Indies, two of Armenia, and one of the plains of Algiers.

CE'LSITUDE, *n. s.* Lat. *celsitudo.* Height.

CELSUS (Aurelius Cornelius). It is commonly supposed, that this esteemed ancient author was a Roman, of the Cornelian family, born towards the end of the reign of Augustus, and still living in the time of Caligula. But these points are not established upon certain testimony, and it is even disputed whether he practised medicine; though his perfect acquaintance with the doctrines of his predecessors, his accurate descriptions of diseases, and his judicious rules of treatment, appear to leave little room for doubt on that head. At any rate, his eight books, De Medicina, have gained him deserved celebrity in modern times, containing a large fund of valuable information; detailed in remarkably elegant and concise language. In surgery particularly he has been greatly admired, for the methods of practice laid down, and for describing several operations as they are still performed. He was the Hippocrates of the Latins, and, without him, the writings of that father in physic would be often unintelligible, and often misunderstood by us. He shows us also how the ancients cured distempers by friction, bathing, &c. The Elzevir edition of Celsus, in 1650, by Vander Linden, is the best, being entirely corrected from his MSS.

Celsus, an Epicurean philosopher, in the second century. He wrote a work against the Christians, entitled, The True Discourse; to which Origen, at the desire of Ambrose his friend, wrote a learned answer. To this philosopher Lucian dedicated his Pseudomanies.

CELTÆ, or Celtes, an ancient nation, by which most of the countries of Europe are thought to have been peopled. The general opinion is that they are descended from Gomer, the eldest son of Japhet: that Gomer settled in Phrygia; his sons Ashkenaz and Togarmah in Armenia, and Riphath in Cappadocia: that the Celtæ, took the left hand, spreading westward towards Poland, Hungary, Germany, France, and Spain; while the descendants of Magog, Gomer's brother, moving eastward, peopled Tartary. In this large European tract, the Celtes began to appear a powerful nation under several considerable kingdoms. Mention is made of them indeed in so many parts of Europe, by ancient geographers and historians, that Ortelius took Celtica to be a general name for the continent of Europe, and made a map of it bearing this title. In those parts of Asia which they possessed, as well as in the different parts of Europe, the Celtes went by various names. In Lesser Asia they were known by the names of Titans and Sacks; in the northern parts of Europe by those of Cimmerians, Cimbrians, &c. and in the southern parts they were called Celtes, Gauls, or Galatians. As to the government of the Celtes, all we know is, that the curetes, and afterwards druids and bards, were the interpreters of their laws; judged all causes criminal and civil; and their sentence was reckoned so sacred, that whoever refused to abide by it was excluded from assisting at their sacred rites; after which no man dared to converse with him; so that this punishment was reckoned even severer than death itself. They neither reared temples nor statues to the Deity, but destroyed them wherever they could find them, planting in their stead large spacious groves; which, being open on the top and sides, were, in their opinion, more acceptable to the divine Being, who is absolutely unconfined. The Celtes accounted the oak the emblem of the Deity, and preferred that tree above all others to plant their groves with, attributing several supernatural virtues both to its wood, leaves, fruit, and misletoe; all which were made use of in their sacrifices and other parts of their worship. But after they had adopted the idolatrous superstition of the Romans and other nations, and the apotheosis of their heroes and princes, they came to worship them much in the same manner: as Jupiter under the name of Taran, which in the Celtic signifies thunder; Mercury, whom some authors call Heus, or Hesus, probably from the Celtic huadh, which signifies a dog, and might be the Anubis latrans of the Egyptians. But Mars was held in the greatest veneration by the warlike, and Mercury by the trading part of the nation. The care of religion was immediately under their curetes, druids, and bards. See Bards, Druids, and Gaul.

Celtes, certain ancient instruments of a wedge-like form, of which several have been discovered in different parts of Great Britain. Antiquarians have generally attributed them to the Celtæ; but, not agreeing as to their use, distinguished them by the above appellation. Whitaker makes it probable that they were British battle-axes. See Battle-axe.

CELTIBERI, or Celtiberians (i. e. the Celtæ seated on the Iberus), the inhabitants of Celtiberia. They were very brave and warlike, their cavalry in particular was excellent. They wore a black rough cloak, the shag of which was like goats' hair. Some of them had light bucklers like the Gauls; others, hollow and round ones like those of other nations. They all wore boots made of hair, and iron helmets adorned with crests of a purple color. They used swords which cut on both sides, and poniards of a foot long. Their arms were of an admirable temper, and are said to have been prepared in the following manner: they buried plates of iron under ground, where they let them remain till the rust had eaten the weakest part of the metal, and the rest was consequently hard and firm. Of this excellent iron they made their swords, which were so strong and well tempered, that there was neither buckler nor helmet that could resist their edge. The Celtiberians were very cruel towards their enemies and malefactors, but showed the greatest humanity to their guests. They not only cheerfully granted their hospitality to strangers who travelled in their country, but were desirous that they should seek protection under their roof.

CELTIBERIA, in ancient geography, a territory south-west of Spain, along the side of the river Iberus. Sometimes the greatest part of Spain was called by this name.

CELTIS, in botany, the lote, or nettle-tree; a genus of the monœcia order, and polygamia class of plants; natural order fifty-third, scabridæ. It is a hermaphrodite plant: female CAL. quinquepartite: COR. none: there are five stamina, and two styles: FRUIT a monospermous plum. Male CAL. hexapetalous: COR. none: there are six stamina, and an embryo of a pistillum. There are twelve known species, all of them deciduous. The principal are: 1. C. occidentalis, the western celtis, a native of Virginia, growing with large, fair, straight stems; the branches are numerous and diffuse; the bark is of a darkish gray color; the leaves are of a pleasant green, three or four inches long, deeply serrated, and in a narrow point, nearly resemble the leaves of the common stinging nettle, and continue on the trees till late in the autumn. 'The wood of the lote tree is extremely durable. In Italy they make their flutes, pipes, and other wind instruments of it. With us the coach-makers use it for the frames of their vehicles.' 2. C. orientalis, the eastern celtis, a native of Armenia. It grows to about twelve feet; and the branches are numerous, smooth, and of a greenish color. The leaves are smaller than those of the others, though they are of a thicker texture, and a lighter green. The flowers come out from the wings of the leaves, on slender foot-stalks: they are yellowish, appear early in spring, and are succeeded by large yellow fruit.

CE'MENT, *v. a.*
CEME'NT, *n.*
CEME'NTER, *n.*
} Lat. *cæmentum*, from *cædo*, to break by beating; because ancient cements were made of small, broken stones: to join, or make to cohere; to come into union or cohesion; anything that binds or unites.

> MEN. What's the news?—
> COM. Your temples burned in their *cement*; and
> Your franchises, whereon you stood, confined
> Into an augur's bore. *Shaks. Coriolanus.*

> But how the fear of us
> May *cement* their divisions, and bind up
> The petty difference, we yet not know. *Id.*

There is a *cement* compounded of flour, whites of eggs, and stones powdered, that becometh hard as marble.—You may see divers pebbles, and a crust of *cement* or stone between them, as hard as the pebbles themselves. *Bacon.*

Look over the whole creation, and you shall see, that the band or *cement*, that holds together all the parts of this great and glorious fabrick, is gratitude. *South.*

It is very observable that Arrianus, saith L. VII., the temple of Belus, in the midst of the city of Babylon, of a vast bigness, was made of bricks *cemented* with asphaltus. *Whitby's Commentary, Gen. xi. 3.*

Madam, religion is the foundation and *cement* of
human societies: and when they that serve at God's
altar shall be exposed to poverty, then religion itself
will be confined to them.
Hooker's Speech to Q. Elizabeth.

God having designed man for a sociable creature,
furnished him with language, which was to be the
great instrument and *cementer* of society. *Locke*

Liquid bodies have nothing to *cement* them; they
are all loose and incoherent, and in a perpetual flux
even an heap of sand or fine powder, will suffer n
hollowness within them, though they be dry substan
ces. *Burnet's Theory of the Earth*

> Love with white lead *cements* his wings;
> White lead was sent us to repair
> Two brightest, brittlest, earthly things,
> A lady's face, and china ware. *Swif*

The foundation was made of rough stone, joine
together with a most firm *cement*; upon this was la
another layer, consisting of small stones and *cement*
Arbuthn

When a wound is recent, and the parts of it a
divided by a sharp instrument, they will, if held
close contact for some time, reunite by inosculatio
and *cement* like one branch of a tree ingrafted
another. *Sharp's Surge*

These walls were drawn round the city in the fo
of an exact square, each side of which was 120 f
longs, or fifteen miles in length, and all built of la
bricks, *cemented* together with bitumen, a glutin
slime arising out of the earth in that country, wh
binds in building much stronger and firmer than li
and soon grows much harder than the brick or sto
themselves which it *cements* together.
Prideaux's Connect

> On the side altar *censed* with sacred smoke,
> And bright with flaming fires. *Dry*

The foundation was made of rough stones, joi
together with a most firm *cement*; upon this was
another layer, consisting of small stones and *ceme*
Arbuthnot on C

An advantageous peace was at last conclu
where he had given the law. The allies were so
raged against each other, that they were not likel
cement soon in any new confederacy. *H*

CEMENT comprehends mortar, solder, p
&c.; but has been sometimes restrained to c
positions used for holding together broken gla
china, and earthenware. For this purpose
juice of garlic is recommended as exceedi
proper, being both very strong, and, if the op
tion is performed with care, leaving little o
mark. Quicklime and the white of an
mixed together, and expeditiously used, are
very proper for this purpose. Dr. Lewis re
mends a mixture of quicklime and cheese, i
following manner:—'Sweet cheese shaved

, changes into
not mingle with
quantities of hot
. hot stone with a
me, into the con-
strong and durable
henware, and glass.
it will be in two or
least acted upon by
n with quick lime, as
mists for luting cracked
acious.' A composition
seed and white lead is
. purposes, but is greatly

g, is used to denote any
tronger kind than ordinary.
ly used is of two kinds; hot,
t cement is made of resin,
st, and chalk, boiled together.
mented are heated, and rubbed
r, with cement between them.
t is that above described for ce-
&c., which is sometimes, though
d in building. The ruins of the
n buildings are found to cohere so
most people have imagined the
e acquainted with some kind of
ch, in comparison of ours, might
lled cement; and that to our want of
. of the materials they used, is owing
inferiority of modern buildings in their
y. Dr. Anderson, in his Essays on
ture, has discussed this subject at con-
le length, and seemingly with great judg-
He is the only person who has given
onal theory of the uses of lime in building,
why it comes to be the proper basis of all
ents. It is in substance as follows: Lime
ich has been slacked and mixed with sand,
ecomes hard and consistent when dry, by a
process similar to that which produces the natu-
ral stalactites in caverns. These are always
formed by water dropping from the roof. By some unknown and inexplicable process of nature, this water has dissolved in it a small portion of calcareous matter in a caustic state. As long as the water continues covered from the air, it keeps the earth dissolved in it; it being the natural property of calcareous earths, when deprived of their fixed air, to dissolve in water. But when the small drop of water comes to be exposed to the air, the calcareous matter contained in it begins to attract the fixable part of the atmosphere. In proportion as it does so, it also begins to separate from the water, and to resume its native form, the limestone of marble. This process Dr. Anderson calls a crystallisation; and when the calcareous matter is perfectly crystallised in this manner, he affirms that it is to all intents and purposes limestone or marble of the same consistence as before: and 'in this manner,' says he, 'within the memory of man, have huge rocks of marble been formed near Matlock in Derbyshire.' If lime in a caustic state is mixed with water, part of the lime will be dissolved, and will also begin to crystallise. The water which parted with the crystallised lime, will then begin to act upon the remainder, which it could not dissolve before; and thus the process will continue, either till the lime be all reduced to an effete, or crystalline state, or something hinders the action of the water upon it. It is this crystallisation which is observed by the workmen when a heap of lime is mixed with water, and left for some time to macerate. A hard crust is formed upon the surface, which is ignorantly called frosting, though it takes place in summer as well as in winter. If therefore the hardness of the lime, or its becoming a cement, depends entirely on the formation of its crystals, it is evident that the perfection of the cement must depend on the perfection of the crystals, and the hardness of the matters which are entangled among them. The additional substances used in making of mortar, such as sand, brick-dust, or the like, according to Dr. Anderson, serve only for a purpose similar to what is answered by sticks put into a vessel full of any saline solution, namely, to afford the crystals an opportunity of fastening themselves upon it. If therefore the matter interposed between the crystals of the lime is of a friable, brittle nature, such as brick-dust or chalk, the mortar will be of a weak and imperfect kind; but when the particles are hard, angular, and very difficult to be broken, such as those of river or pit-sand, the mortar turns out exceedingly good and strong. Sea-sand is found to be an improper material for mortar, which Dr. Anderson ascribes to its being less angular than the other kinds. That the crystallisation may be more perfect, he also recommends a large quantity of water, that the ingredients be perfectly mixed together, and that the drying be as slow as possible. An attention to these circumstances, he thinks, would make the buildings of the moderns equally durable with those of the ancients; and from what remains of the ancient Roman works, he thinks a very strong proof of his hypothesis might be adduced. The great thickness of their walls necessarily required a vast length of time to dry. The middle of them was composed of pebbles thrown in at random, and which have evidently had mortar so thin as to be poured in among them. Thus a great quantity of lime would be dissolved, and the crystallisation performed in the most perfect manner; and the indefatigable pains and perseverance for which the Romans were so remarkable in all their undertakings, leaving no room to doubt that they would take care to have the ingredients mixed together as well as possible. The consequence of all this is, that the buildings formed in this manner are all as firm as if cut out of a solid rock; the mortar being equally hard, if not more so, than the stones themselves. Nowithstanding the bad success of those who have attempted to repeat M. Loriot's experiments, however, Dr. Black informs us that a cement of this kind is certainly practicable. It is done, he says, by powdering the lime while hot from the kiln, and throwing it into a thin paste of sand and water; which not slaking immediately, absorbs the water from the mortar by degrees, and forms a very hard mass. 'It is plain,' he adds, 'that the strength of this mortar depends on using the lime hot or fresh from the kiln.' By mixing together gypsum and quick lime, and then adding water, we may form a ce-

hasta or spear was taken from him, and consequently his wages and hopes of preferment stopped.

CE'NSOR, *n.*
CENSO'RIAL.
CENSO'RIAN.
CENSO'RIOUS.
CENSO'RIOUSNESS.
CE'NSORSHIP.

Lat. *censor*; 'He who executed the census at Rome, and was empowered, as a magistrate, to censure and punish evil generally, even to the degrading the senators, &c. See the extract from Lempriere. Hence applied to a critic, or any severe judge of others; to the disposition to judge harshly; and the office of determining authoritatively what may or may not be printed. As, after a thirty years' struggle for liberty, we have a modern censorship of the press in France. Sometimes it has *of* before the object of reproach, and sometimes *on* or *upon*.

After the office of the *censors* had remained for some time unaltered, the Romans, jealous of their power, abridged the duration of their office, and a law was made A. U. C. 420, by Mamercus Æmilius, to limit the time of the *censorship* to eighteen months. Their office was more honorable, though less powerful, than that of the consuls; the badges of their office were the same, but the *censors* were not allowed to have lictors to walk before them as the consuls. When one of the *censors* died, no one was elected in his room till five years were expired, and his colleague immediately resigned. This circumstance originated from the death of a *censor* before the sacking of Rome by Brennus, and was ever after deemed an unfortunate event to the republic. The emperors abolished the *censors*, and took upon themselves to execute their office. *Lempriere's Class. Dict.*

It was brought to Rome in the *censorship* of Claudius. *Browne's Vulgar Errours.*

As the chancery had the pretorian power for equity, so the star-chamber had the *censorian* power for offences under the degree of capital. *Bacon.*

Troublesome, *censorious*, dividing, spirits occasioned more thoughts of those unhappy controversies about forms and ceremonies, church government, &c. and I was still more satisfied, even when most serious, that the bitter extremes of dissenters, as well as of rigid conformists, were highly displeasing to God.
French's Diary, 1677.

Ill-natured *censors* of the present age,
And fond of all the follies of the past.
Roscommon.

Do not too many believe no religion to be pure, but what is intemperately rigid; no zeal to be spiritual, but what is *censorious*, or vindictive? *Spratt.*

Sourness of disposition, and rudeness of behaviour, *censoriousness* and sinister interpretation of things, all cross and distasteful humours, render the conversation of men grievous and uneasy to one another.
Tillotson.

The most severe *censor* cannot but be pleased with the prodigality of his wit, though at the same time, he could have wished that the master of it had been a better manager. *Dryden.*

He treated all his inferiors of the clergy with a most sanctified pride; was rigorously and universally *censorious upon* all his brethren of the gown. *Swift.*

My God, if truth their *censure* guide,
If guilt be in my facts descried,
If e'er from my dissembling heart
My friend has found the hostile part

* * * *

Now in the dust my life be laid,
And earth's dark womb my glory shade.
Merrick.

A statesman, who is possessed of real merit, should look upon his political *censurers* with the same neglect that a good writer regards his critics. *Addison.*

You, my disciples, live in a very *censorious* age, and the scribes and pharisees, who are in the highest esteem for the strictness of their lives, place a great part of their own religion in condemning others; but see to it, that you do not judge those about you, in this rigorous and severe manner.
Doddridge's Expositor, Matt. vii.

Whatever references is due to his diligence, or his attainments, it can be no criminal degree of *censoriousness* to charge that etymologist with want of judgment, who can seriously derive dream from drama, because life is a drama, and drama is dream.
Johnson.

Those who raise envy will easily incur *censure*.
Id. Idler.

It commonly happens to him who endeavours to obtain distinction by ridicule or *censure*, that he teaches others to practise his own arts against himself.
Id.

I therefore dismiss it with frigid tranquillity, having little to fear or hope from *censure* or from praise.
Id.

I am sorry to find the *censure* I have passed upon Occiduus is even better founded than I supposed.
Cowper.

In youth, the seed-time of our days,
Full many a crop is spoiled by praise;
And all the spring-tide fields of Hope
Smiles that should ripen, wither up.
While *censure*, rigid and unkind,
Nips the young buds and starves the mind.
Smith's Album.

CENSORS, from censere, to see; two prime magistrates in ancient Rome. Their business was to register the effects of the Roman citizens, to impose taxes, and to take cognizance of the manners of the citizens. They had a power to censure immorality, by inflicting some mark of ignominy on the offender. They had even a power to create the princeps senatus, and to expel from the senate such as they deemed unworthy of that office. This power they sometimes exercised arbitrarily, and therefore a law was passed, that no senator should be degraded, until he had been formally accused and found guilty by both the censors. They also filled up the vacancies in the senate, upon any remarkable deficiency in their numbers; they let out to farm all the lands and revenues of the republic; and contracted with artificers, for building and repairing all the public works, both in Rome and the colonies of Italy. In all parts of their office, however, an appeal always lay from the sentence of the censors, to that of an assembly of the people. The first two censors were created A. U. C. 311, upon the senate observing that the consuls were so much taken up with war, as not to have time to look into other matters. The office continued till the time of the emperors, who assumed the censorial power, calling themselves morum præfecti; though Vespasian and his sons resumed the title of censors. Decius attempted to restore the dignity to a particular magistrate. After this we hear no more of the censors, till Constantine's time, who made his brother censor, and he seems to have been the last that enjoyed

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the office. The office was so considerable, that for a long time none aspired to it till they had passed all the rest; so that it was thought surprising that Crassus should have been admitted censor, without having been either consul or prætor. At first the censors enjoyed their dignity for five years, but in A. U. C. 420, the dictator Mamertinus made a law restraining it to a year and an half, which was afterwards observed very strictly. At first one of the censors was elected out of a patrician, and the other out of a plebeian family; and, upon the death of either, the other was discharged from his office and two new ones elected, but not till the next lustrum. In 622 both censors were chosen from among the plebeians; and after that time the office was shared between the senate and people. After their election in the Comitia Centurialia, the censors proceeded to the capitol, where they took an oath to act equitably and impartially throughout the whole course of their administration. The late aristocratical government of Venice had a censor of the manners of the people, whose office lasted six months.

CE'NSURE, *v.* & *n.*
Ce'nsurer,
Ce'nsurable,
Ce'nsuring, *n.*
} Lat. *censura*, of the same etymology as censor. To give sentence judicially, or otherwise; to express an unfavorable opinion; a judicial sentence; an opinion of any kind. See the passages from Shakspeare; reprimand; blame; a condemnatory sentence or opinion.

Power of *censure* and ordination appeareth even by Scripture marvellous probable, to have been derived from Christ to his church, without this surmised equality in them to whom he hath committed the same.
Hooker.

Scripture hath said, 'For this very cause left I thee in Crete, that thou shouldst redress the things that remain; and shouldst ordain presbyters in every city, as I appointed thee.' In the former place the power of *censure* is spoken of, and the power of ordination in the latter.
Id.

Most honored madam,
My lord of York—out of his noble nature,
Zeal and obedience he still bore your grace;
Forgetting, like a good man, your late *censure*,
Both of his truth and him (which was too far),
Offers, as I do, in a sign of peace,
His service and his counsel.
Shakspeare. Henry VIII.

Glos. Madam, the king is old enough himself,
To give his *censure*; these are no women's matters.
Q. Mar. If he be old enough, what needs your grace
To be protector of his excellence?
Id. Henry VI.

Madam, and you, my sister, will you go
To give your *censures* in this weighty business?
Id. Richard III.

We must not stint
Our necessary actions with the fear
To cope malicious *censures*. *Id. Hen. VIII.*

They that can inflict *censures* upon presbyters, have certainly superiority of jurisdiction over presbyters, for æqualis æqualem coercere non potest, saith the law.
Jer. Taylor.

In St. Paul's time, though the *censure* of heresy were not so loose and forward as afterwards; and all that were called heretics were clearly such, and highly criminal; yet as their crime was, so was their *censure*, that is spiritual. *Taylor on Prophecy.*

But if I have answered every challenge, vindicated every authority; *censured* nothing unjustly; satisfied all his malicious objections, and warranted every sentence of my poor epistle; let my apology live and pass, and let my refuter go as he is. *Bishop Hall.*

What need we care for the *censures* of men, if our hearts can tell us that we are in favour with God. *Id.*

There is a deep corruption of mind and manners, which engageth men in their own defence to *censure* others, diverting the blame from home, and shrouding their own under the covert of other men's faults.
Barrow.

All mankind in a lump is severely *censured*, as void of any real goodness or true virtue; so fatally depraved as not to be corrigible by any good discipline; not to be recoverable even by the grace of God. Yea God himself is hardly spared, his providence coming under the bold obliquy of those, who, as the Psalmist speaketh of some in his time, whose race doth yet survive, speak loftily, and set their mouth against the heavens.
Id.

The like *censurings* and despisings have embittered the spirits, and whetted both the tongues and pens of learned men one against another. *Sanderson.*

It cannot reasonably be thought that Christ doth here forbid church governors to judge, condemn, and pass the *censures* of the church upon notorious and scandalous offenders, because he hath himself enjoined the execution of her *censures* upon those who will not hear the church when she requires them to repent of, and satisfy their Christian brothers for, any trespass done against him. *Whitby on Matt.* vii. 1.

CENSUS, in Roman antiquity, an authentic declaration made before the censors, by the people, of their respective names and places of abode. This was registered by the censors; and contained an enumeration, in writing, of all the estates, lands, and inheritances they possessed; their quantity, quality, place, wives, children, domestics, tenants, and slaves. In the provinces the census served not only to discover the substance of each person, but where, and in what manner and proportion, taxes might be best imposed. The census at Rome is commonly thought to have been held every five years: but Middleton has snown, that both census and lustrum were held at various irregular and uncertain intervals. The census was an excellent expedient for discovering the strength of the state; the number of the citizens, how many were fit for war, and how many for offices of other kinds, how much each was able to pay of taxes, &c. It went through all ranks of people, though under different names: that of the common people was called census; that of the knights, census, recensio, recognitio; that of the senators, lectio, relectio.—Hence it came to be used personally.

Census was also used for a person worth 100,000 sesterces, or who was entered as such in the censual tables, on his own declaration. In this sense, it amounts to the same with classicus, or a man of the first class; though Gellius limits the estate of such to 125,000 asses. By the Voconian law, no census was allowed to give by his will above a fourth part of what he was worth to a woman. Census was likewise used in other senses: as, 1. For the book or register wherein the professions of the people were entered; and which was frequently cited and appealed to, as evidence in the courts of justice. 2. A man's whole substance or estate. 3. A tax on persons, or a capitation tax. See Capite.

Census Duplicatus, a double rent, paid by vassals to their lords on extraordinary occasions; as expeditions to the Holy Land, &c.

Census Ecclesiæ Romanæ, an annual contribution voluntarily paid to the see of Rome by the several princes of Europe.

Census Equester, in Roman antiquity, the estate of a knight, rated at 400,000 sesterces, which was required to qualify a person for that order, and without which no virtue or merit was available.

Census Senatorius, the patrimony of a senator, was limited to a certain value; being at first rated at 800,000 sesterces, but afterwards, under Augustus, enlarged to 1,200,000.

CENT. Lat. *centum*, a hundred. Five per cent; that is so much by, or for, the hundred.

CE'NTAUR, *n.* }
Ce'ntaur-like, *adj.* } A poetical being, supposed to be compounded of the upper part of
Ce'ntaury, *n.* }
a man, and the lower part of a horse; the sign Sagittarius in the zodiac. For the plant centaury, see Centaurea.

Down from the waist they are *centaurs*, though women all above. *Shakspeare.*

He, as if, *centaur-like*, he had been one piece with his horse. *Sidney.*

The idea of a *centaur* has no more falsehood in it than the name *centaur*. *Locke.*

Add pounded galls, and roses dry,
And with Cecropian thyme strong scented *centaury*.
Dryden.

The chearless empire of the sky
To Capricorn the *Centaur* archer yields.
Thomson.

Centaur, in astronomy, a part of a southern constellation, usually joined with the wolf. See Astronomy.

Centaurs, in mythology, from κεντεω, to gall, and ταυρος, a bull; fabulous monsters, half men and half horses. The poets pretend that the centaurs were the sons of Ixion and a cloud: the reason of which fancy is, that the people so named retired to a castle, called νεφελη, which signifies a cloud. Some will have the centaurs to have been a body of shepherds and herdsmen, rich in cattle, who inhabited the mountains of Arcadia, and to whom is attributed the invention of bucolic poetry. Palæphætus, in his book of Incredibles, relates that, in the reign of Ixion, king of Thessaly, a herd of bulls on mount Thessalus ran mad, and ravaged the whole country, rendering the mountains inaccessible; that some young men who had found out the art of taming and mounting horses, undertook to clear the mountains of these animals, which they pursued on horseback, and thence obtained the appellation of centaurs. This success rendering them insolent, they insulted the Lapithæ, a people of Thessaly: and because when attacked they fled with great rapidity, it was supposed they were half horses and half men. The centaurs in reality were a tribe of Lapithæ, who inhabited the city Pelethronium, adjoining to mount Pelion, and first invented the art of breaking horses, as is intimated by Virgil.

CENTAUREA, greater centaury: a genus of the polygamia frustanea order, and syngenesia class of plants; natural order, forty-ninth; compositæ. The receptacle is bristly, the pappus simple, the cor. of the radius funnel-shaped, longer than those of the disk, and irregular. There are upwards of 131 species; of which we shall only mention two: viz. 1. C. cyanus, the blue bottle, grows commonly among corn. The expressed juice of this flower stains linen of a beautiful blue color, but is not permanent. Boyle says, that the juice of the inner petals, with a little alum, makes a beautiful permanent color, equal to ultramarine. 2. C. glastifolia. The root of this species is an article in the materia medica. It has a rough, somewhat acrid taste, and abounds with a red viscid juice. Its rough taste has gained it some esteem as an astringent; its acrimony as an aperient; and its glutinous quality as a vulnerary: but the present practice takes very little notice of it.

CENTENARIO, or Centenarius, in the middle age; 1. an officer who had the command, with the administration of justice, in a village. The centenarii were under the jurisdiction and command of the court. We find them among the Franks, Germans, Lombards, Goths, &c. 2. An officer who had the command of 100 men; more frequently called a centurion. 3. An officer, in monasteries, who had the command of 100 monks.

CE'NTENARY, *n.* }
Centen'nial, *adj.* } Lat. *centenarius*. The number of a hundred. Mason uses the word
Centi'loquy, *n.* }
centennial to denote the hundredth anniversary. Centiloquy is a collection of a hundred sayings. See Centiloquium.

In every *centenary* of years from the creation, some small abatement should have been made. *Hakewill.*

CENTININUM Ovum, i. e. the 100dth egg, among naturalists, a sort of hen's egg much smaller than ordinary, vulgarly called a cock's egg; from which it has been fabulously held that the cockatrice is produced. The name is taken from an opinion, that these are the last eggs which hens lay, having laid 100 before. They have no yolks, but in other respects differ not from common ones; having the albumen, chalazes, membranes, &c. in common with others. In the place of the yolk is found a little body like a serpent coiled up, which doubtless gave rise to the fable of the basilisk's origin from thence. Their origin is with probability ascribed by Hervey to this, that the yolks in the vitellary of the hen are exhausted before the albumina.

CENTE'SIMAL, *n.* Lat. *centesimus*. Hundredth; the next step of progression after decimal in the arithmetic of fractions.

The neglect of a few *centesimals* in the side of the cube, would bring it to an equality with the cube of a foot. *Arbuthnot on Coins.*

CENTESIMATION, a milder kind of military punishment, in cases of desertion, mutiny, and the like, when only every 100dth man is executed.

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CENTESIMA USURA, that wherein the interest in 100 months became equal to the principal: i. e. where the money is laid out at one per cent. per month; answering to what in our style would be called twelve per cent.; for the Romans reckoned their interest not by the year, but by the month.

CENTIFO'LIOUS, *adj.* from Lat. *centum* and *folium.* Having an hundred leaves.

CENTILOQUIUM, a collection of 100 sentences, opinions, or sayings. The Centiloquium of Hermes, contains 100 aphorisms, or astrological sentences, supposed to have been written by some Arab, and falsely fathered on Hermes Trismegistus. It is only extant in Latin, in which it has several times been printed. The Centiloquium of Ptolemy is a famous astrological piece, frequently confounded with the former, consisting likewise of 100 sentences, divided into short aphorisms.

CE'NTINEL. See SENTINEL.

CE'NTIPEDE, *n.* Lat. from *centum* and *pes.* A poisonous insect in the West Indies, commonly called by the English *forty legs.*

CENTIPEDE WORMS, such as have a great many feet, though the number does not amount to 100, as the term imports.

CENTIPES. See SCOLOPENDRA.

CENTO, n. Lat. *cento.* A composition formed by joining scraps from other authors.

It is quilted, as it were, out of shreds of divers poets, such as scholars call a *cento.* *Camden's Rem.*

This hath made it to be suspected of too much compliance with that church, and her offices of devotion, and that it is a very *cento* composed out of the Mass book, Pontifical, Breviaries, Manuals, and Portuises of the Roman church. *Jer. Taylor.*

If any man think the poem a *cento,* our poet will but have done the same in jest which Boileau did in earnest. *Advertisement to Pope's Dunciad.*

CENTONARII, in antiquity, certain of the Roman army, who provided different sorts of stuff called centones, used to quench the fire which the enemies' engines threw into the camp.

CE'NTRE, *v.* & *n.*
CE'NTRAL, *adj.*
CENTRA'LITY, *n.*
CE'NTRALLY, *adv.*
CE'NTRICAL, or
CE'NTRICLE, *adj.*
CE'NTRICALLY, *adv.*
CE'NTRICALNESS, *n.*
CENTRI'FUGAL, *adj.*
CENTRI'PETAL, *adj.*

Lat. *centrum; κεντρον.* That point which is equidistant from every part of the circumference. The verb, and all its kindred words, partake of, or have reference to, this meaning. To centre is to fix on a centre; to collect, and be collected, to a point; to rest on; to be placed in the midst. Centrifugal signifies flying from a centre; centripetal, having a tendency towards it.

The heavens themselves, the planets, and this *centre,*
Observe degree, priority, and place. *Shakspeare.*

He that has light within his own clear breast,
May sit i' the *centre,* and enjoy bright day.
But he that hides a dark soul and foul thoughts,
Benighted walks under the mid-day sun;
Himself is his own dungeon. *Milton.*

As God in heaven
Is *centre,* yet extends to all; so thou
Centring receivest from all those orbs. *Id.*

One foot he *centred,* and the other turned
Round through the vast profundity obscure. *Id.*

Some that have deeper digged Love's mine than I,
Say where his *centrick* happiness doth lie. *Donne.*

Do not sigh, fair nymph, for fire
Hath no wings, yet doth as hire
Till it hit against the pole;
Heaven's the *centre* of the soul. *Marvell.*

O impudent and regardful of thy own,
Whose thoughts are *centred* on thyself alone.
Dryden.

What hopes you had in Diomed, lay down;
Our hopes must *center* in ourselves alone. *Id.*

Though one of the feet most commonly bears the weight, yet the whole weight rests *centrally* upon it. *Id.*

He may take a range all the world over, and draw in all that wide air and circumference of sin and vice, and *centre* it in his own breast. *South.*

Where there is no visible truth wherein to *centre,* errour is as wide as men's fancies, and may wander to eternity. *Decay of Piety.*

There is now, and was then, a space or cavity in the *central* parts of it; so large as to give reception to that mighty mass of water. *Woodward's Natural History.*

It was attested by the visible *centring* of all the old prophecies in the person of Christ, and by the completion of these prophecies since, which he himself uttered. *Atterbury.*

Umbriel, a dusky melancholy sprite,
Down to the *central* earth, his proper scene,
Repairs. *Pope's Rape of the Lock.*

They described an hyperbola, by changing the *centripetal* into a *centrifugal* force. *Cheyne.*

Might not, in ancient times, the near passing of some large comet of greater magnetic power than this globe of ours, have been a means of changing its poles, and thereby wracking and deranging its surface, placing in different regions the effect of *centrifugal* force, so as to raise the waters of the sea in some, while they were depressed in others? *Id.*

His wealth, fame, honors, all that I intend,
Subsist and *centre* in one point—a friend. *Cowper.*

Through constant dread of giving truth offence,
He ties up all his hearers in suspense;
Knows what he knows, as if he knew it not,
What he remembers seems to have forgot:
His sole opinion, whatsoe'er befall,
Centring at last in having none at a. . *Id.*

Thou chief star!
Centre of many stars! which makest our earth
Endurable, and temperest the hues
And hearts of all who walk within thy rays!
Byron.

CENTRE OF A SPHERE, a point in the middle, from which all lines drawn to the surface are equal.

CENTRE OF GRAVITY, in mechanics, that point about which all the parts of a body do in any situation exactly balance each other.

CENTRE OF MOTION, that point which remains at rest, while all the other parts of a body move about it.

CENTRIFUGAL FORCE. See MECHANICS.

CENTRIPETAL FORCE. See MECHANICS.

CENTRISCUS, in ichthyology, a genus of fishes belonging to the order of amphibia nantes. The head gradually ends in a narrow snout, the aperture is broad and flat; the belly is carinated; and the belly fins united. There are three species, viz. 1. C. scolopax, with a rough scabrous body, and a straight extended tail. It has two ventral fins, with four rays in each, but no teeth.

It is found in the Mediterranean. 2. C. scutatatus has its back covered with a smooth bony shell, which ends in a sharp spine, under which is the tail; but the back fins are between the tail and the spine. It is a native of the East Indies. 3. C. valitarus, body oblong, lanceolate and rough, with small recumbent bristles at the nostrils. A native of Amboyna.

CENTRY. See Sentinel.

CENTUMCELLÆ, in ancient geography, Trajan's villa in Tuscany, on the coast, three miles from Algæ; with an excellent port, called Trajanus Portus; and a factitious island at the mouth of the port, made with a huge block of stone, on which two turrets rose, with two entrances into the basin or harbor. It is now called Civita Vecchia. Long. 11° 51′ E., lat. 42° 5′ N.

CENTUMVIRI, in Roman antiquity, judges appointed to decide common causes among the people: they were chosen, three out of each tribe; and, though 105 in number, were called centumviri, from the round number centum, an hundred.

CENTUNCULUS, in botany, a genus of the monogynia order, and tetrandria class of plants; natural order twentieth, rotacea: cal. quadrifid: cor. quadrifid, and patent; the stamina are short: caps. is unilocular, cut round or parting horizontally.

CE'NTUPLE, *v.* & *adj.* } Lat. *centuplex*. A
Centu'plicate, *v.* } hundred fold; to multiply a hundred fold.

> Then would he *centuple* thy former store,
> And make thee far more happy than before.
> *Sandys.*

CENTU'RIATE, *v.* Lat. *centurio*. To divide into hundreds.

CENTURIA'TOR, *n.* From century. A name given to historians who distinguish times by centuries; which is generally the method of ecclesiastical history.

> The *centuriators* of Magdeburg were the first that discovered this grand imposture. *Ayliffe's Parergon.*

CENTU'RION, *n.* Lat. *centurio*. A Roman military officer, who had the command of a hundred men.

> And the *centurion* and thei that weren with him kepynge Jhesus whann thei sighen the erthe ochalyng, and the thinges that weren do so, thei dredden gretly and seiden, verily this was Goddis sone. *Wiclif's New Testament. Matt.* xxvii.

> And he commanded a *centurion* to keep Paul, and to let him have liberty, and that he should forbid none of his acquaintance to minister or come unto him. *Acts* xxiv. 23.

> Have an army ready, say you?—A most royal one. The *centurions* and their charges distinctly billetted in the entertainment, and to be on foot at an hour's warning. *Shakspeare.*

Centurions, in Roman antiquity. See Manipulus. Every one of the thirty manipuli in a legion was divided into two ordines, or centuries. Every manipulus was allowed two centurions, one to each century· and, to determine the point of priority between them, they were created at two different elections. The thirty who were made first always took the precedency of their fellows; and therefore commanded the right hand, as the others did the left. The triarii had their centurions elected first, next to them the principes, and afterwards the hastati. Primi ordines is sometimes used in historians for the centurions of these orders; and the centurions are sometimes styled principes ordinum, and principes centurionem. These distinctions afforded a wide field for promotion: first through all the orders of the hastati; then through the principes; and afterwards from the last order of the triarii to the primipilus, the most honorable of the centurions.

CENTURIPA, Centuripe, or Centoripa, in ancient geography, a town on the south-west of the territory of Ætna, on the river Cyamosorus: now call Centurippi. It was a democratical city, which, like Syracuse, received its liberty from Timoleon. Its inhabitants cultivated the fine arts, particularly sculpture and engraving. It was taken by the Romans, plundered and oppressed by Verres, destroyed by Pompey, and restored by Octavius, who made it the residence of a Roman colony. In digging for the remains of antiquities, cameos are no where found in such abundançe as at Centurippi and its environs. The situation of the place is romantic: it is built on the summit of a vast group of rocks, which was probably chosen as the most difficult of access, and consequently the safest in times of civil commotion. The remains still existing of its ancient bridge are a proof of its having been once a considerable city.

CE'NTURY. Lat. *centuria*. A hundred. The word is most frequently applied to specify time; but is also used to signify number merely; as in a 'century of inventions.'

> When with wood leaves and weeds I've strewed
> his grave,
> And on it said a *century* of prayers,
> Such as I can, twice o'er, I'll weep and sigh.
> *Shakspeare.*

> The nature of eternity is such, that though our joys after some *centuries* of years may seem to have grown older by having been enjoyed so many ages, yet will they really still continue new. *Boyle.*

> And now time's whiter series is begun,
> Which in soft *centuries* shall smoothly run.
> *Dryden.*

> Romulus, as you may read, did divide the Romans into tribes, and the tribes into *centuries* or hundreds. *Spencer.*

> The lists of bishops are filled with greater numbers than one would expect; but the succession was quick in the three first *centuries*, because the bishop often ended in the martyr. *Addison.*

> When we see men grow old, and die at a certain time from one another, from *century* to *century*, we laugh at the elixir that promises to prolong life a thousand years. *Johnson.*

Century, in antiquity. The Roman people, when assembled for electing magistrates, enacting laws, or deliberating upon any public affair, were always divided into centuries, and voted by centuries, that their votes might be the more easily collected, whence these assemblies were called comitia centuriata. The Roman cohorts were also divided into centuries. See Centurion, and Cohort.

CEODES, in botany, a genus of the diœcia order, belonging to the polygamia class of plants: CAL. none: COR. monopetalous, with a short terminated tube; the stamina are ten subulated filaments; the antheræ roundish.

CEOL, an initial in the names of men, which signifies a ship or vessel, such as those that the Saxons landed in.

CEORLES, one of the classes into which the people were distinguished among the Anglo-Saxons. The ceorles, who were persons completely free, and descended from a long race of freemen, constituted a middle class between the laborers and mechanics (who were generally slaves, or descended from slaves), on the one hand, and the nobility on the other. They might go where they pleased, and pursue any way of life that was most agreeable to their humor; but so many of them applied to agriculture, and farming the lands of the nobility, that a ceorl was the most common name for a husbandman or farmer in the Anglo-Saxon times. They seem in general to have been a kind of gentleman farmers; and if any one of them acquired the property of five hides of land, upon which he had a church, a kitchen, a bell-house, and a great gate, and obtained a seat and office in the king's court, he was esteemed a nobleman or thane. If a ceorl applied to learning, and attained to priest's orders, he was also considered as a thane; his weregild, or price of his life, was the same, and his testimony had the same weight in a court of justice. When he applied to trade, and made three voyages beyond sea, in a ship of his own, and with a cargo belonging to himself, he was also advanced to the dignity of a thane. But if a ceorl inclined to arms, he became the sithcundman, or military retainer, to some potent and warlike earl, and was called the huscarle of such an earl. If one of these huscarles acquitted himself so well as to obtain from his patron either five hides of land, or a gilt sword, helmet, and breastplate, as a reward of his valor, he was likewise considered as a thane. Thus the temple of honor stood open to these ceorles, whether they applied to agriculture, commerce, letters, or arms, which were then the only professions esteemed worthy of a freeman.

CEOS, CEA, CIA, or COS, in ancient geography, one of the Cyclades, opposite to Sunium, in Achaia. It is fifty miles in compass, and is commended by the ancients for its fertility and richness of its pasture. The first silk stuffs, according to Pliny and Solinus, were wrought here. Ceos was particularly famous for excellent figs. It was first peopled by Aristæus, the son of Apollo and Cyrene, who, being grieved for the death of his son, Actæon, retired from Thebes, at the persuasion of his mother, and went over with some Thebans to Ceos, at that time uninhabited. Diodorus Siculus tells us, that he retired to the island of Cos; but the ancients, as Servitus observes, called both these islands by the name of Cos. Ceos became so populous, that a law was made, commanding all persons upwards of sixty to be poisoned, that others might be able to subsist: so that none above sixty were seen to be in the island, being obliged, after they arrived at that age, either to submit to the law, or abandon the country, together with their effects. Ceos had, in former times, four famous cities, viz. Julis, Carthæa, Coressus, and Præessa. The two latter were, according to Pliny, swallowed up by an earthquake. The other two flourished in Strabo's time. Carthæa stood on a rising ground, at the end of a valley, about three miles from the sea. The situation of it agrees with that of the present town of Zia, which gives name to the whole island. The ruins both of Carthæa and Julis are still remaining; those of the latter take up the whole mountain, and are called by the modern inhabitants Polis, that is, the city. See POLIS. Ceos was, with the other Greek islands, subdued by the Romans, and bestowed upon the Athenians by Marc Antony the triumvir, together with Ægina, Tinos, and some other adjoining islands, which were all reduced to one Roman province by Vespasian. The island is now called Zia.

CE'PHALALGY, *n.* Κεφαλαλγία. The headache.

CEPHALANTHUS, button-wood, a genus of the monogynia order, and tetrandria class of plants; natural order forty-eighth, aggregatæ. No common calyx; the proper one is superior, and funnel-shaped; the receptacle globose and naked, with one downy seed. There are five species, natives of the East Indies, the principal is C. occidentalis, a deciduous shrub, native of North America. It grows to about five or six feet high; and is not a very bushy plant, as the branches are always placed thinly in proportion to the size of the leaves, which will grow more than three inches long, and one and a half broad, if the trees are planted in a proper soil. The leaves stand opposite by pairs on the twigs, and sometimes by threes, and are of a light-green color: their upper surface is smooth; they have a strong nerve running from that on each side to the borders. These, as well as the foot-stalk in autumn, dye a reddish color. The flowers, which are aggregate, are produced at the ends of the branches, in globular heads, in July. The florets which compose these heads are funnel-shaped, of a yellow color, and fastened to an axis on the middle.

CEPHALENIA, or CEPHALLENIA, an island of the Ionian sea, between Ithaca and Zacynthus, known in Homer's time by the names of Samos and Epirus Melæna. It is about eighty miles long, forty broad, and 130 in compass. It had anciently four cities. Strabo tells us, that in his time there were only two cities remaining; but Pliny speaks of three, adding, that the ruins of Same, the metropolis, which had been destroyed by the Romans, were still in being. The names of the four cities were, according to Thucydides, Same, Prone, Cranii, and Palæ. This island was subdued by the Thebans, under Amphitryo, who is said to have killed Pterelas, who then reigned in it. While Amphitryo was carrying on the war in Cephalenia, then called Samos, Cephalus, having accidentally killed his wife Procris, fled to Amphitryo, who received him, and made him governor of the island, which thenceforth was called Cephalenia. After it had been long subject to the Thebans, it fell under the dominion of the Macedonians, and was taken from them by the Ætolians, who held it till it

was reduced by M. Fulvius Nobilior; who, having gained the metropolis after a siege of four months, sold all the citizens for slaves, adding the whole island to the dominions of Rome. It is now called Cephalonia.

CEPHA'LICK, *adj.* Κεφαλή. That which is medicinal to the head.

> *Cephalick* are all such as attenuate the blood, so as to make it circulate easily through the capillary vessels of the brain. *Arbuthnot on Aliment.*
>
> I dressed him up with soft folded linen, dipped in a *cephalick* balsam. *Wiseman.*

Cephalic Medicines comprehend cordials, with whatever promotes a free circulation of the blood through the brain. Except when the disorder arises from excess of heat, of an inflammatory disposition in the head, moist topicals should never be used; but always dry ones. To rub the head after it is shaved proves an instantaneous cure for a cephalalgia, a stuffing of the head, and a weakness of the eyes, arising from a weak and relaxed state of the fibres.

Cephalic Vein, in anatomy, creeps along the arm between the skin and the muscles, and divides it into two branches; the external goes down to the wrist, where it joins the basilica, and turns up to the back of the hand; the internal branch, together with a small one of the basilica, makes the mediana. See Anatomy. The ancients used to open this vein for disorders of the head, for which reason it bears this name; but a better acquaintance with the circulation of the blood informs us, that there is no foundation for such a notion.

CEPHALONOMANTIA, from κεφαλα, ονος, an ass, and μαντεια. A method of divination, by an ass's head broiled on the coals. After muttering a few prayers, the names of several persons suspected of a theft, or the like, were repeated over; he at whose name the ass's jaws made any motion, was held convicted.

CEPHALUS, in fabulous history, an Athenian hero, who married Procris, the daughter of Pandion, king of Athens. Ovid represents him as having been so beautiful, that Aurora fell in love with him; but, at the same time, as so constant to his wife, that even the charms of the rosy goddess could not prevail on him to break his nuptial vow: whereupon Aurora changed his form to that of another man. His wife gave him a javelin, which had the peculiar property of never missing its aim;—a property which proved fatal to herself;—for, one day being out in a wood, where he was hunting, he, mistaking her among the rustling leaves, for a wild beast, killed her with it. Ovid narrates his adventures at large, with the metamorphosis of his dog into a stone, &c. *Metam. Lib.* vii. *Fab.* 25—28.

CEPHEUS, in fabulous history, a king of Arcadia, on whose head Minerva fastening one of Medusa's hairs, he was rendered invincible.

CERAM, an island of the eastern seas, between 160 and 180 miles in length, and about forty in breadth. A chain of mountains, from 6500 to 7000 feet high, intersects it longitudinally. The sago tree is found here in large forests. Wild hogs and deer are also numerous, and birds of paradise, together with a bird called the salangan. The natives, who are said to be a cruel and ferocious race, confine themselves to the interior; but the island is under the dominion of chiefs acknowledging the rule of the Dutch, who have destroyed most of the clove trees. Many singular stories are told of the natives. They are a stout and strong race, it is said, and so active, that they run down the wild hogs. Their clothing is only a bandage of cloth of the bark of a tree round the loins; their arms, a bamboo sword, and bow and arrows. The qualification for marriage in the men is the production of the head of a person whom they have treacherously murdered; nor can they build a new house until they have destroyed an enemy. The heads thus collected, after being triumphantly exposed in the villages, are conveyed to the inmost recesses of the woods, where their idolatrous rites are performed, and where, says Rumphius, 'the devil answers their questions, and often carries away some of them, especially children, for three or four months, when he brings them back, after having presented them with certain presents.' Valentyn informs us that parents deliver their children to the priests, to be instructed in the religion of the demon they worship; and the priests receiving the children in the darkest recess of their leafy temples, the parents are made to believe that they are sacrificed by the dismal screams they hear, and by the bloody spears being thrust through the roof of the temple. In three or four months, however, they are returned to them with presents of some Chinese copper coins on strings. The principal food of these tribes is the wild animals of the woods, rats and snakes. They take but one wife, to whom they are constant. The island has several good ports, particularly Lahoo, near the south-west end, where the Dutch had formerly a resident; Sawa, on the north, and Wakoo on the north-east.

CERAMBYX, in zoology, a genus of insects of the beetle kind, belonging to the order of insecta coleoptera. The antennæ are long and small; the breast is spinous or gibbous; and the elytra are linear. Linnæus enumerates eighty-three species, chiefly distinguished by the figure of the breast.

CERA'STES, *n.* Κεραστης. A serpent having horns, or supposed to have them.

> Scorpion, and asp, and amphisbena dire,
> *Cerastes* horned, hydrus, and elops drear. *Milton.*

Cerastes, in zoology, the trivial name of a species of anguis and coluber.

CERASTIUM, mouse-ear: a genus of the pentagynia order and decandria class of plants; natural order twenty-second, carophylleæ: cal. pentaphyllous; the petals are bifid: caps. is unilocular, and opening at the top. There are twenty-two known species, but none of them possessed of any remarkable property, growing wild in all parts of the world.

CE'RATE, *n. s.* Lat. *cera*, wax. A medicine made of wax, which, with oil, or some softer substance, makes a consistence softer than a plaster. *Quincy.* See Pharmacy.

Ce'rated, *adj.* Lat. *ceratus*. Waxed; covered with wax.

Ceration, the name given by the ancients to the small seeds of ceratonia used by the Arabian physicians as a weight to adjust the doses of ith us took its

y : a genus of
nœcia class of
oloraceæ : male
lament are long :
rown to the ger-
eed is two-horned
. arenaria, a native

tree, or St. John's
cia order, and po-
atural order thirty-
hermaphrodite and
; the STAM. are five ;
gumen coriaceous and
diœcious, or male and
t plants. There is but
a, a native of Spain, of
the Levant. It is an
e countries where it is
hedges. It produces a
rown colored pods, which
of a sweetish taste. These
poorer sort of inhabitants
rcity of other food. They
bread, from an assertion of
re the locusts St. John eat
e wilderness. The tree may
is country from seeds which
a moderate hot-bed, and the
e open air by degrees.
YLLUM, in botany : a genus
a order, and monœcia class of
order fifteenth, inundatæ : male
e : COR. none : STAM. from six-
: female CAL. multipartite ; one
le ; one naked seed. Species 1.
, common in all parts of Europe
itain.
IA, CERAUNIAS, or CERAUNIUS
atural history, from κεραυνος, a thun-
sort of flinty stone, of no certain
of a pyramidal or wedge-like figure ;
supposed to fall from the clouds in the
under-storms, and to be possessed of
table virtues, as promoting sleep, pre-
rom lightning, &c. The ceraunia is the
th the thunder-stone, or arrow's head.
re frequently confounded with the ombriæ
ontiæ, as being all supposed to have the
origin. Most naturalists take the ceraunia
native stone, formed among the pyrites, of
ne, concrete, mineral juice. Mercatus and
Woodward assert it to be artificial, and to
e been thus fashioned by tools. The ceraunia,
ording to these authors, are the heads of the
cient weapons of war, in use before the inven-
n of iron : which, upon the introduction of
at metal, growing into disuse, were dispersed
n the fields through different countries. Some
of them had possibly served in the early ages
for axes, others for wedges, others for chissels ;
but the greater part for arrow-heads, darts, and
lances. The ceraunia is also held by Pliny for
a white or crystal-colored gem, that attracted
lightning to itself. What this was, is hard to
say. Prudentius also speaks of a yellow ce-
raunia ; by which he is supposed to mean the
carbuncle or pyropus.

CERBERA, in botany, a genus of the monogynia order, and pentandria class of plants; natural order thirtieth, contortæ : COR. contorted. The fruit a monospermous plum. The most remarkable species is C. atrouai, a native of the warm parts of America. It rises with an irregular stem to eight or ten feet, sending out many crooked diffused branches, which towards their tops are garnished with thick succulent leaves of a lucid green, smooth and very full of a milky juice. The flowers come out in loose bunches at the end of the branches : they are of a cream color, having long narrow tubes, and at the top are cut into five obtuse segments, which seem twisted, so as to stand oblique to the tube. The wood of this tree smells very foully, and the kernels of the nuts are deadly poison, to which there is no antidote ; so that the Indians will not even use the wood for fuel.

CERBERUS, in mythology, a three-headed mastiff, the son of Typhon and Echidna, and placed to guard the gates of hell. He fawned upon those who entered, but devoured all who attempted to get back He was, however, mastered by Hercules, who dragged him up to the earth, when, in struggling, a foam dropped from his mouth, which produced the poisonous herb called aconite, or wolf's-bane. Some have supposed that Cerberus is the symbol of the earth, or of all-devouring time : and that its three mouths represent the present, past, and future. The victory obtained by Hercules over this monster, denotes the conquest which this hero acquired over his passions. Mr. Bryant supposes that Cerberus was the name of a place, and that it signified the temple of the sun ; deriving it from kir abor, the place of light. This temple was also called Tor Caph-El, which was changed to τρικηφαλος; and hence Cerberus was supposed to have had three heads. It was likewise called tor keren, turris regia; whence τρι καρηνος, from τρεις, three, and καρηνον, head.

CERCIS, the Judas tree, a genus of the monogynia order, and decandria class of plants; natural order thirty-third, lomentaceæ : CAL. is quinquedentated, and gibbous below : COR. papilionaceous, with a short vexillum or flag petal under the wings or side petals; a leguminous plant. There are only two species, both deciduous. 1. C. Canadensis, or Canadian cercis, will grow to the size of the first sort in some places. The branches are also irregular. The leaves are cordated downy, and alternate. The flowers are usually of a palish red, and show themselves in spring, before the leaves are grown to their size. These too are often eaten in sallads, and afford an excellent pickle. There is a variety of this with deep red, and another with purpl flowers. These trees not only exhibit their flowers in clusters, in different colors, early in spring, before the leaves are grown to such a size as to hide them ; but also afford a pleasing variety, from the difference of the upper and lower surface of the leaves, the one being of a fine green, the other of a hoary cast, which the waving winds present alternately to view. 2. C. siliquastrum, common Judas tree, or Italian cercis, a native of Italy and other parts of the south of Europe.

CERDON, a Syrian, who, being accused of Manicheism, came to Rome in the time of pope Hyginus, and abjured his errors about A. D. 56; but was afterwards convicted of persisting in them, and cast out of the church. Cerdon asserted two principles, the one good and the other evil. This last, according to him, was the creator of the world, and the god that appeared under the old law. The first, whom he called unknown, was the father of Jesus Christ; who, he taught, was incarnate only in appearance, and was not born of a virgin; nor did he suffer death but in appearance. He denied the resurrection; and rejected all the books of the Old Testament, as coming from an evil principle. Marcion was his disciple.

CERDONIANS, ancient heretics, who maintained most of the errors of Simon Magus, Saturninus, and the Manichees, so named from their leader Cerdon.

CERE, *v.*
CE'REOUS,
CE'RECLOTH, *n.*
CE'REMENT, *n.*

Ar. *kir*; Chald. *kera*; Κηρός; Lat. *cera*, wax. To wax; waxy; a cloth smeared with waxy or gummy substances, to be applied to wounds; cloths dipped in melted wax, in which dead bodies were wrapped, after having been embalmed.

The ancient Egyptian mummies were shrouded in a number of folds of linen, besmeared with gums, in manner of *cerecloth*. *Bacon.*

Let me not burst in ignorance, but tell
Why canonized bones, hearsed in earth,
Have burst their *cerements?* *Shakspeare.*

You ought to pierce the skin with a needle, and strong brown thread *cered*, about half an inch from the edges of the lips. *Wiseman.*

The tyranny of silence is not lasting,
And though events be hidden, just men's groans
Will burst all *cerement*, even a living grave!
Byron. The Two Foscari.

CERE, the naked skin with which the base of the bill is covered in the hawk kind.

CEREALIA, in antiquity, feasts of Ceres, instituted by Triptomelus, son of Celeus king of Eleusis, in gratitude for his having been instructed by Ceres, who was supposed to have been his nurse, in the art of cultivating corn and making bread. There were two feasts of this kind at Athens; the one called Eleusinia, the other Thesmophoria. On these occasions Bacchus, as well as Ceres, was honored. The victims offered were hogs, on account of the waste they make in the products of the earth. Whether wine was offered is much disputed among the critics. Plautus and Macrobius countenance the negative side; Cato and Virgil the positive. Macrobius says, indeed, they did not offer wine to Ceres, but mulsum, which was a composition of wine and honey boiled up together; that the sacrifice made on the 21st of December to that goddess and Hercules, was a pregnant sow, together with cakes and mulsum. The cerealia passed from the Greeks to the Romans, who held them for eight days successively; commencing on the 5th of the ides of April. The women alone were concerned in the celebration, all dressed in white; the men, likewise in white, were only spectators. They ate nothing till after sunset; because Ceres, in her search after her daughter, took no repast but in the evening. This festival was omitted by the Romans after the defeat at Cannæ, the mourning being so universal, that there were no women to celebrate it, out of mourning.

CEREALIA, in botany, the name used by Linnæus for the larger esculent seeds of the grasses: viz. rice, wheat, rye, barley, oats, millet, panic grass, Indian millet, holcus, zizania, and maize. To these may be added darnel, which, by preparation, is rendered esculent.

CERE'ALIOUS, *adj.* Lat. *cerealis.* Pertaining to corn.

CE'REBEL. Lat. *cerebellum*; the little brain; a roundish viscus forming part of the brain.

In the head of man, the base of the brain and *cerebel*, yea, of the whole skull, is yet parallel to the horizon. *Derham.*

CEREBELLUM. See ANATOMY. Index.

CEREBRUM, the brain. See ANATOMY. Index, and BRAIN.

Surprise my readers, while I tell 'em
Of *cerebrum* and *cerebellum.* *Prior.*

CE'REMONY, *n.*
CEREMO'NIAL, *n.* & *adj.*
CEREMO'NIALLY, *adv.*
CEREMO'NIOUS,
CEREMO'NIOUSLY, *adv.*
CEREMO'NIOUSNESS, *n.*

Fr. *ceremonie*; It. and Span. *ceremonia*; Lat. *cæremonia*; Ιερομηνία. Cleland contends that it is derived from cir-y-won, 'meaning a custom sacred, or passed into a law by the shire or gemot.' Ceremony is a religious rite or form; a form of civility, and of state. Ceremonial, as a noun, signifies accustomed external form or rite; the order for the rites and forms of the Romish church; as an adjective, relating to forms; formal; adhering to old forms. Ceremonious means, consisting of outward rites; awful; attentive to old rites and formalities; observant of the rules of civility; civil and formal to a troublesome extent.

The name of *ceremonies* we do not use in so large a meaning, as to bring sacraments within the compass and reach thereof; although things belonging to the outward form and seemly administration of them are contained in that name, even as we use it. For the name of *ceremonies* we use as they themselves do. *Hooker.*

Bring her up to the high altar that she may
The sacred *ceremonies* partake *Spenser.*

Disrobe the images
If you find them decked with *ceremony.*
Shakspeare.

He is superstitious grown of late,
Quite from the main opinion he held once,
Of fantasy, of dreams, and *ceremonies.* *Id.*

The sauce to meat is *ceremony*;
Meeting were bare without it. *Id.*

What art thou, thou idle *ceremony?*
What kind of god art thou, that sufferest more
Of mortal grief than do thy worshippers?
Art thou aught else but place, degree, and form?
Id.

What mockery will it be,
To want the bridegroom when the priest attends
To speak the *ceremonial* rites of marriage. *Id.*

Then let us take a *ceremonious* leave,
And loving farewell, of our several friends. *Id.*

O, the sacrifice,
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And loving farewell, of our several friends. *Id.*

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How *ceremonious,* solemn, and unearthly
It was i' th' offering. *Id.*

You are too senseless obstinate, my lord;
Too *ceremonious* and traditional. *Shakspeare.*

Ceremoniously let us prepare
Some welcome for the mistress of the house. *Id.*

The old caitiff was grown so *ceremonious,* as he would needs accompany me some miles in my way. *Sidney.*

Not to use *ceremonies* at all, is to teach others not to use them again, and so diminish respect to himself. *Bacon.*

Oh monstrous, superstitious puritan,
Of refined manners, yet *ceremonial* man;
That when thou meetest one with enquiring eyes
Dost search, and, like a needy broker, prize
The silk and gold he wears. *Donne.*

Christ did take away that external *ceremonial* worship among the Jews. *Stillingfleet.*

We are to carry it from the hand to the heart, to improve a *ceremonial* nicety into a substantial deity, and the modes of civility into the realities of religion. *South.*

Under a different economy of religion, God was more tender of the shell and *ceremonious* part of his worship. *Id.*

With dumb pride, and a set formal face,
He moves in the dull *ceremonial* track,
With Jove's embroidered coat upon his back. *Dryden.*

A coarser place,
Where pomp and *ceremonies* entered not,
Where greatness was shut out, and highness well
forgot. *Id.*

They have a set of *ceremonious* phrases, that run through all ranks and degrees among them. *Addison.*

The only condition that could make it prudent for the clergy to alter the *ceremonial* or any indifferent part, would be a resolution in the legislature to prevent new sects. *Swift.*

Ceremonial, Ceremoniale, the order of the rules and forms of the Romish church. This book was published in 1516 by the bishop of Corcyra; at which the college of cardinals were so scandalised, that some of them voted to have the author as well as the book burnt, for exposing the sacred ceremonies to the eyes of profane people.

Ceremonial Law, the regulations given by Moses relating to the worship of God among the ancient Jews. In this sense it is the same with the Levitical law, and stands distinguished from the moral, as well as judicial law. See Law.

Ceremonies, Master of the, an officer instituted by King James I. for the reception of ambassadors and strangers of quality. He wears about his neck a chain of gold, with a medal, having on one side an emblem of peace, with this motto, Beati pacifici, and on the other an emblem of war, with Dieu et mon droit.

Ceremonies, Marshal of the, is an officer, subordinate to the above.

CERES, in heathen mythology, the goddess of corn. She was the daughter of Saturn and Ops, and the mother of Proserpine, by Jupiter. Pluto having stolen away Proserpine, Ceres travelled all over the world in quest of her, by the help of a torch, which she had lighted in Mount Ætna. In this search, she came to Celeus, king of Eleusis, and undertook to bring up his infant son Triptolemus. To render her charge immortal, she fed him with divine milk, and in the night covered him with fire. Celeus observing an unusual improvement in his son, resolved to watch his nurse, to which end he hid himself in that part of the house where she used to cover the child with fire; but when he saw her put the infant under the embers, he cried out and discovered himself. Ceres punished his curiosity with death. Afterwards she taught the youth agriculture, and mounted him in a chariot drawn by winged dragons, that he might traverse the world, and teach mankind the use of corn and fruits. Having at last discovered, by the nymph Arethusa, that Proserpine was in the infernal regions, she applied to Jupiter, and obtained of him that her daughter should be restored, provided she had tasted nothing during her stay; but Ascalaphus declaring that while walking in Pluto's orchard, she had pulled an apple, and had tasted of the seeds, she was for ever forbidden to return. Ceres, out of revenge, turned Ascalaphus into an owl. At length, Jupiter, to mitigate her grief, permitted Proserpine to pass one half the year in the infernal regions with Pluto, and the other half with her mother on earth. Cicero mentions a temple of Ceres at Catanea in Sicily, where was a very ancient statue of that goddess, but entirely concealed from the sight of men, every thing being performed by matrons and virgins.

Ceres, and Pallas, two minor planets, the former of which was discovered on the 1st of January, 1801, by M. Piazza, astronomer-royal at Palermo, and the latter by Dr. Olbers of Hamburgh. Ceres, more distant from the Sun than Mars, and nearer than Jupiter, its mean distance being above 250,000,000 English miles, is so small that glasses of a very high magnifying power will not show it with a distinctly defined diameter, which is only 160 English miles; and revolves round the sun in four years 222 days. Pallas, nearer than Jupiter, is nearly 270,000,000 English miles distant from the sun, and its diameter only 110 miles, so that it is more imperceptible than Ceres, both owing to its inferior size, and superior distance from the earth, when both are in opposition to the sun.

CERET, a town of France, in the department of the Eastern Pyrenees, and ci-devant province of Roussillon, with a magnificent bridge of a single arch, over the river Tet. In 1660 the commissioners of France and Spain met in this town to settle the limits of the two kingdoms. It is twelve miles from Perpignan.

CERIGNOLA, a town of the Capitanata, Naples, on the borders of the province of Bari. In the neighbourhood are the ruins of the ancient Salapia. It contains about 12,000 inhabitants, and is twenty-eight miles south-east of Manfredonia.

CERIGO, or Cherigo, the ancient Cythera, one of the seven islands of the Ionian republic. It is situated at the entrance of the Grecian Archipelago, in the gulf of Maritonisi, or Kolokythia, and to the south of the Morea. It is seventeen miles long, ten broad, and about forty-five in circumference; and consists for the most part of barren rocky mountains. Some corn, wine, oil, flax, and cotton are raised here; and there are also flocks of sheep and goats on the hills, as well as cattle. The inhabitants, who are about 10,000, are poor, and profess the Greek religion. This island formerly belonged to the Venetians, and was taken from toem by the French in 1797; but it was retaken two years after, and incorporated into the Ionian republic. The French again had possession of it in 1807, but were expelled by the English in 1809. Cerigo sends one deputy to the legislative assembly of the Ionian republic.

Cerigo, or Kupsuli, the ancient Cythera, the chief town of the island, is a small place, protected by a castle, on the declivity of a mountain, not far from the south coast, where it has a convenient harbour, called Porto Delphino. Population 1200.

CERINTHE, honeywort, a genus of the monogynia order and pentandria class of plants; natural order forty-first, asperifoliæ. The limb of the corolla is a ventricose tube with the throat pervious; and there are two bilocular seeds. There are three species, natives of Germany, Italy, and the Alps. They are low annual plants with purple, yellow, and red flowers, which may be propagated by seed sown in autumn, in a warm situation.

CERINTHIANS, ancient heretics, who denied the deity of Jesus Christ: so named from Cerinthus. They believed that he was a mere man, the son of Joseph and Mary; but that, in his baptism, a celestial virtue descended on him in form of a dove; by means of which he was consecrated by the holy spirit; made Christ, and wrought so many miracles: that, as he received it from heaven, it quitted him after his passion, and returned to the place whence it came, so that Jesus, whom they called a pure man, really died and rose again; but that Christ, who was distinguished from Jesus, did not suffer at all. It was partly to refûte this sect that St. John wróte his gospel. They received the gospel of St. Matthew, to countenance their doctrine of circumcision, from Christ's being circumcised, but they omitted the genealogy; and discarded the epistles of St. Paul, because that apostle held circumcision abolished.

CERINTHUS, one of the first heresiarchs, being contemporary with the apostles. Besides the above tenets, he ascribed the creation, not to God, but to angels; and taught that circumcision ought to be retained under the gospel. He is looked upon as the head of the converted Jews, who raised, in the church of Antioch, the dissension mentioned in Acts xv. He published a work under the title of Apocalypse, whence some have pretended that he was the author of St. John's Revelation. See Apocalypse.

CERNE-ABBAS, a market town of Dorset, seven miles north of Dorchester, and 127 from London. It is situate on the river Cerne, and had formerly a stately abbey of Benedictines, founded in the tenth century, by Ailmer, earl of Cornwall. Part of its remains are still visible at the north end of the town. Cerne consists of four or five streets, pleasantly situate in a valley surrounded by hills. At the east end of the town, on the side of a steep hill, called Trendle Hill, is a gigantic human figure, cut in chalk, 180 feet high; his left hand is extended, and his right, which is erect, holds a club; between his legs are three rude letters, scarcely legible, and over them, in modern figures, 748. It is said to be the representation of Cenric, son of Cuthred, king of Wessex, who was slain in battle. Others suppose it be the figure of some deity, and say the letters are JAO. It covers nearly an acre of ground, yet seems to have been cut with some idea of the rules of proportion. It is repaired about once in seven years, by clearing the furrows and filling them with fresh chalk. Various have been the opinions of the origin of this figure. Dr. Stukely thinks it is the figure of Hercules, called Heil by the Saxons, and cut as a memorial of their arrival, in compliment to Eli, who expelled the Belgic.

CEROCHYTOS; from κηρος, wax, and χυω, to melt; in antiquity, a method of painting in wax, melted and colored with pigments for the purpose, and applied with pencils.

CEROMA, in antiquity; 1. A mixture of oil and wax with which the ancient wrestlers rubbed themselves: not only to make their limbs more sleek, and less capable of being laid hold of, but more pliable and fit for exercise. 2. A cerate, or cerecloth.

CEROMANTIA, an ancient method of divination, by means of wax melted over a vessel of water, and let drop in three distinct spaces; observing the figure, situation, distance, and concretion of the drops.

CEROPEGIA, in botany, a genus of the monogynia order and pentandria class of plants; natural order thirtieth, contortæ. There are two erect follicles; the seeds plumose or covered with a feathered pappus; the limb of the corolla connivent or closing at top. There are six species, natives of the East Indies and Cape of Good Hope.

CE'ROTE, *n. s.* The same with Cerate, which see.

> In those which are critical, a *cerote* of oil of olives, with white wax, hath hitherto served my purpose.
> *Wiseman.*

CER'TAIN, *adj.*
Ce'rtainly.
Ce'rtainty.
Ce'rtes, *adj.*
Ce'rtitude.

Certus, Lat.; *certain*, Fr. from *cerno*, Lat.: To perceive, which Ainsworth derives from κρινω, Gr. to judge, or try. Fixed, sure, immutable, exact, particular; without question or doubt. Certes was commonly the word used for certainly, from Chaucer to Butler.

> Of which man I have not *certayn* what thing I schul write to the lord, for which thing I broughte him to ghou, and moost to thee, thou kyng Agrippa, that whanne axing is maad, I have what I schal write. *Wicklif's New Test.* Dedis of Apostles, 25.

> The kynde or beawtye of the whyche vestures, a *certayne* darkness or rather ignorance of oldenes forgotten, had obscuryd and darkened, as the smoke is wont to darken images that stand nyghe the smoke.
> *Colville's Boetius.*

> *Certes* the soverainst thinge of desire and most creture resonable, have, or els shuld have, full appetite to thir perfeccyon; unresonable bestes mowen not sithe reson hath in 'hem, no workinge than resonable that wol not, is comparisoned to unresonable, and made lyke 'hem. *Chaucer*

> No *certainly*, he was a fayre prelat,
> He was not pale as a forpined gost;
> A fat swan loved he best of any rost,
> His palfrey was as broune as is a bery. *Id.*

The hydden traynes I know, and secret snares of love,
How soone a loke will prynte a thoughte that never may remove;
The slypper state I know, the sodein twines from welthe,
The doubtfull hope, the *certaine* wooe, and sure despaired helthe. *Shelton.*

But notwithstandyng *certes* in my mind,
I durst well swere, as true ye shall them find
In every poynt eche answere by and by,
As are the iudgementes of astronomye.
Sir Thomas More.

But of al this poynte, is there no *certaintie*, and whoso diuineth vpon coniectures, may as wel shote to farre as to short. *Id.*

In these things, whereof the Scripture appointeth no *certainty*, the use of the people of God, or the ordinances of our fathers, must serve for a law.
Hooker.

TIT. We wait for *certain* money here, Sir.
FLAV. Ay,
If money were as *certain* as your waiting,
'Twere sure enough.
Shakspeare. Tim. of Athens.

For, *certes*, these are people of the island. *Id.*

Some *certain* of your brethren roared, and ran
From noise of our own drums. *Id.*

Doubting things go ill, often hurts more
Than to be sure they do; for *certainties*
Or are past remedies, or timely knowing,
The remedy then born. *Id.*

Certes, Sir knight, you 've been too much to blame,
Thus for to blot the honour of the dead,
And with foul cowardice his carcase shame,
Whose living hands immortalized his name. *Spenser.*

It is *certainly* an argument of a great love, and a great confidence, and a great sincerity, and a great hope, when a man lays down his life in attestation of a proposition. *Taylor on Prophecying.*

You shall gather a *certain* rate. *Exodus.*

How should mens' favour be but like themselves, variable and inconsistent? There is no *certainty* but in the favour of God, in whom can be no change; whose love is entailed upon a thousand generations.
Bishop Hall.

Distrust makes our danger greater, and our helps less than they are, and forecasts ever worse than shall be; and if evils be possible, it makes them *certain*.
Id.

Can the wisdom of the heart remedy the craft of the heart? *Certainly* it may. *Id.*

However, I with thee have fixed my lot,
Certain to undergo like doom: if death,
Consort with thee. *Milton's Paradise Lost.*

Certes, our authors are to blame.
Butler's Hudibras.

Let there be *certain* leather bags made of several bignesses, which, for the matter of them, should be tractable. *Wilkins.*

Those things are *certain* among men, which cannot be denied without obstinacy and folly. *Tillotson.*

This form before Alcyone present,
To make her *certain* of the sad event, *Dryden.*

Virtue that directs our ways,
Thro' *certain* dangers to uncertain praise. *Id.*

They thought at first they dreamed; for 'twas offence
With them to question *certitude* of sense. *Id.*

Certainty is two-fold; *certainty* of truth and *certainty* of knowledge. *Certainty* of truth is, when words are so put together in propositions, as exactly to express the agreement or disagreement of the ideas they stand for, as really it is. *Certainty* of knowledge is to perceive the agreement and disagreement of ideas, as expressed in any proposition. This we usually call knowing, or being *certain* of the truth of any proposition. *Locke.*

Who calls the council, states a *certain* day,
Who forms the phalanx, and who points the way.
Pope.

Certain it is that a man may, if he will, let his heart close to the having no regard to any thing but his dear self, even with exclusion of his very children. *Spectator*, No. 490.

Revelation, in plain and express language, declares some doctrines which our reason at present knows not with evidence and *certainty*, how or in what sense to reconcile to some of its own principles; as, that the child Jesus is the mighty God, &c. *Watts.*

He that has a coast has likewise the sea to a *certain* distance; he that possesses a fortress has the right of prohibiting another fortress to be built within the command of its cannon. *Dr. Johnson.*

But how frequent soever may be the examples of existence without thought, it is *certainly* a state not much to be desired. *Idler.*

The Scriptures commonly presuppose in the persons to whom they speak, a knowledge of the subjects of natural justice, and are employed, not so much to teach new rules of morality, as to enforce the practice of it by new sanctions, and by a greater *certainty*; which last seemed to be the proper business of a revelation from God. *Paley.*

Then faith and hope no more the mind employ,
One lost in *certainty*, and one in joy. *Anonymous.*

On a *certain* occasion when her niece was sitting at her side, she asked his opinion concerning the lawfulness of such amusements as are found at Vauxhall or Ranelagh. *Cowper's Private Correspondence.*

Would you have me praise her hair?
Let her place my garland there;
Is her hand so white and pure?
I must press it to be sure;
Nor can I be *certain* then,
Till it grateful press again. *Sheridan.*

CERTHIA, in ornithology, the creeper or ox-eye, a genus belonging to the order of picæ. The beak is arched, slender, sharp, and triangular; the tongue is sharp at the point, and the feet are of the walking kind, i. e. having the toes open and unconnected. Of this genus near fifty species have been enumerated by ornithologists. The following are a few of the most remarkable: 1. C. cardinalis, the cardinal creeper, has the head, neck, and breast, of a crimson color; down the middle of the back is a stripe of the same color to the rump: the rest of the body is black, and the wings and tail are black. It inhabits the cultivated parts of the island of Tanna; is there called kuyameta, and lives by sucking the nectar of flowers. 2. C. cœrulea, the blue creeper, has the head of a most elegant blue, but on each side there is a stripe of black like velvet, in which the eye is placed; the chin and throat are marked with black in the same manner, the rest of the body violet blue. It inhabits Cayenne. Seba says that it makes its nest with great art. The outside is composed of dry stalks of grass, or such like, but within of very downy soft materials, in the shape of a retort, which it suspends from some weak twig, at the end of a branch of the tree; the opening or mouth downwards, facing the ground: the neck is a foot in length, but the real nest is quite at the top, so that the bird has to climb up this funnel-like opening to get at the nest. Thus it is secure from every harm, neither monkey, snake, nor lizard, daring to venture at the end of the branch, as it would not support them. 3. C. familiaris, the common ox-eye is grey above, and white underneath, with brown wings and ten white spots on the ten prime feathers. This bird is found in most parts of Europe, though it is believed nowhere so common as in Britain. The facility with which it runs on the bark of a tree, in all directions, is wonderful: this it does with as much ease as a fly on a glass window. It lives principally, if not wholly, on insects, which it finds in the chinks and among the moss of trees. It builds its nest in some hole of a tree, and lays generally four eggs, very rarely more than seven: these are ash-colored, marked at the end with spots and streaks of a deeper color, and the shell is pretty hard. It remains in the places which it frequents during the winter, and builds its nest early in the spring. 4. C. Loteni, Loten's creeper, has the head, neck, back, rump, scapulars, and upper tail coverts, of green gold; beneath, from the breast to the vent, of velvet black, which is separated from the green on the neck by a transverse bright violet band, a line and a half in breadth: the lesser wing coverts are of this last color; the middle coverts are green gold; and the greater coverts are very fine black, edged with green gold on the outer edge; the quills are of the same color, as are also the tail feathers. The female differs in having the breast, belly, sides, thighs, under wing and tail coverts of a dirty white, spotted with black; and the wings and tail not of so fine a black. It inhabits Ceylon and Madagascar, and is called angaladian. Buffon says it makes its nest of the down of plants, in form of a cup, like that of a chaffinch, the female laying generally five or six eggs; and that it is sometimes chased by the tarantula spider, which seizes on the whole brood, and sucks the blood of the young birds. 5. C. pusilla, or the brown and white creeper, according to Edwards, is not above half the size of our European creeper. The upper part of the body is brown, with a changeable gloss of copper; the under parts are white; the quills brown, edged with glossy copper; the tail blackish, the outer feather tipped with white. Those who keep these birds at the Cape of Good Hope, having many sorts in large cages, supply them with only honey and water. They also catch flies which come within the reach of their confinement; and these make up their whole subsistence. It has been attempted to transport them further, but the want of flies on board a ship prevented them living more than three weeks, so necessary are insects to their subsistence. 6. C. simulans, the mocking bird, or cassique, is of the size of the lesser thrush. On the cheeks is a narrow white spot; the head, especially on the crown, is inclined to violet: the plumage in general is olive green, inclining to yellow on the under parts; the quills are brown, the secondaries edged with olive; the color of the tail is like that of the secondaries, and some- forked; the legs are dusky blue, and the ack. They are found in great numbers merica, and are thus described by Mr. n his Wanderings:—'The cassique, in size, is larger than the starling; he courts the society of man, but disdains to live by his labors. When nature calls for support, he repairs to the neighbouring forest, and there partakes of the store of fruits and seeds, which she has produced in abundance for her aërial tribes. When his repast is over, he returns to man, and pays the little tribute which he owes him for his protection; he takes his station on a tree close to his house, and there, for hours together, pours forth a succession of imitative notes. His own song is sweet, but very short. If a toucan be yelping in the neighbourhood, he drops it, and imitates him. Then he will amuse his protector with the cries of the different species of the wood-pecker; and, when the sheep bleat, he will distinctly answer them. Then comes his own song again, and if a dog or a guinea fowl interrupt him he takes them off admirably, and by his different gestures during the time, you would conclude that he enjoys the sport.' 7. C. viridis, the hook-billed green creeper has a bill of an inch and three quarters long, and bent in a semicircle. The plumage in general is olive green, palest beneath, and somewhat inclined to yellow; the quills and tail are dusky, the legs dusky brown, and the feathers just above the knee or garter, white. It inhabits the Sandwich islands in general, and is one of the birds whose plumage the natives make use of in constructing their feathered garments which, having these olive-green feathers intermixed with the beautiful scarlet and yellow ones belonging to the next species, and yellow-tufted bee-eater, make some of the most beautiful coverings of these islanders.

Certificate, Trial by, in the English law, a species of trial allowed in such cases, where the evidence of the person certifying is the only proper criterion of the point in dispute. See Trial.

CE'RTIFY, *v. a.* } Fr. *certifier*, from Lat.
Certi'ficate. } *certus* and *fio*. To be made sure. It has *of*, says Dr. Johnson, before the thing told, and after the person told.

But I *certify* you, brethren, that the gospel which was preached of me is not after man. *Gal.* i. 2.

The English ambassadores returned out of Flanders from Maximilian, and *certified* the king, that he was not to hope for any aid from him. *Bacon.*

This is designed to *certify* those things that are confirmed of God's favour. *Hammond's Fundamentals.*

A *certificate* of poverty is as good as a protection. *L'Estrange.*

I can bring *certificates* that I behave myself soberly before company. *Addison.*

If a question of mere law arises in Chancery, it is the practice to refer it to the opinion of the judges of King's Bench or Common Pleas, upon a case stated for that purpose, wherein all the material facts are admitted, and the point of law is submitted to their decision, who thereupon hear it solemnly argued by counsel on both sides, and *certify* their opinion to the chancellor. And upon such *certificate* the decree is usually founded. *Blackstone's Commentaries.*

CERTIORARI, a writ issuing out of the chancery or king's bench, to call up the records of a cause therein depending, that justice may be done; upon complaint made by bill, that the party who seeks the said writ, hath received hard dealing in the said court. A certiorari is made re

.on pleas, or in chancery, which last mentioned court would be certified of a re- om inferior courts, and pro- .r sessions of the peace, may the king's bench by a certi- record must be returned, and it; though usually in chan- be returnable there, it removes the record.

.onsidered in the things or ideas ojects of our understanding, is a .ment or disagreement of one part dge with another; as applied to the perception of such agreement ent, or such a firm well-grounded .cludes not only all manner of doubt, nceivable possibility of a mistake. three sorts of certitude or assurance, to the different natures and circum- f things, viz.: Certitude, mathematical, rising from mathematical evidence; such the three angles of a triangle are equal to right angles. Certitude, moral, is that .ed on moral evidence, and is frequently valent to a mathematical one; as that there formerly such an emperor as Julius Cæsar, d that he wrote the commentaries which pass nder his name, because the historians of those imes have recorded it, and no man has ever disproved it since; this affords a moral certitude, in common sense so great, that one would be thought a madman who should deny it. Natural or physical certitude is that which depends upon the evidence of sense, as that I see such or such a color, or hear such or such a sound; no body questions the truth of this, where the organs, the medium, and the object are rightly disposed.

CERTOSA, a village of the late Italian republic, in the department of the Ticino, and ci-devant principality of Pavia, famous for its Carthusian convent, in the middle of a great park, the square wall of which is twenty miles in circumference, and reaches nearly to Pavia. Here Francis I. king of France, was taken prisoner by the Austrians, on the 20th February, 1525.

CERVANTES SAAVEDRA (Michael de), the inimitable author of Don Quixote, was born at Madrid in 1549. From his infancy he was fond of books; but he applied himself wholly to novels and poetry, especially those of Spanish and Italian authors. He went to Italy to serve cardinal Aquaviva, to whom he was chamberlain at Rome, and afterwards followed the profession of a soldier for some years, under the victorious Colonna. He was present at the battle of Lepanto in 1571, in which he lost his left hand by a shot. After this he was taken by the Moors and carried to Algiers, where he continued a captive five years and a half. Then he returned to Spain, and wrote several comedies and tragedies, which were well received, and acted with great applause. In 1584 he published his Galatea, a novel, in six books. But the work which has immortalised his name, is the History of Don Quixote; the first part of which was printed at Madrid in 1605. This is a satire upon books of knight-errantry; and the chief end of it was to destroy the reputation of these books. It was universally read; and the most eminent painters, tapestry-workers, engravers, and sculptors, were soon employed in representing the history of Don Quixote. Cervantes's work, even in his lifetime, had the honor of receiving royal approbation. As Philip III. was standing in a balcony of his palace at Madrid, he observed a student on the banks of the Manzanares reading a book, and from time to time breaking off and beating his forehead, with extraordinary marks of delight; upon which the king said, 'That scholar is either mad, or reading Don Quixote:' the latter of which proved to be the case. But, notwithstanding the vast applause his book every where met with, Cervantes had much ado to keep himself from starving. In 1615 he published a second part. He wrote also The Force of Blood, in two volumes, and The Troubles of Persiles and Sigismunda. He had employed many years in writing this novel, and finished it but just before his death; for he did not live to see it published. His sickness was of such a nature, that he was able to be his own historian. At the end of the preface to this work, he represents himself on horseback upon the road, and a student, who had overtaken him, engaged in conversation with him: 'And happening to talk of my illness,' says he, 'the student soon let me know my doom, by saying it was a dropsy I had got; the thirst attending which, all the water of the ocean, though it were not salt, would not suffice to quench. Therefore Senor Cervantes, says he, you must drink nothing at all, but do not forget to eat; for this alone will recover you without any other physic. I have been told the same by others, answered I; but I can no more forbear tippling, than if I were born to do nothing else. My life is drawing to an end; and from the daily journal of my pulse, I shall have finished my course by next Sunday at the farthest.—But adieu, my friends all, for I am going to die; and I hope to see you ere long in the other world, as happy as heart can wish.' His dropsy increased, and at last proved fatal to him; yet he continued to speak and to write bon mots. He received the last sacrament on the 18th of April, 1616; yet the day after wrote a Dedication of his book to the Count de Lemos.

CERVICAL ARTERIES. See ANATOMY.

CERVICAL NERVES, seven pairs of nerves, so called, as having their origin in the cervix. See ANATOMY.

CERVICAL SINUSES, or CERVICAL VEINS. See ANATOMY.

CERVIX, in anatomy, properly denotes the hind part of the neck; as distinguished from the fore part, called jugulum, or the throat. See ANATOMY.

CERVIX SCAPULÆ, the head of the shoulder-blade, or that upper process whose sinus receives the head of the humerus.

CERVIX UTERI, the neck of the uterus; called also vagina. See ANATOMY.

CE'RULE,
CERU'LEAN,
CERU'LEOUS,
CERULI'FIC.
} Lat. *cæruleus*, from *cæsleus*, *cælum*, sky-colored; blue; Sir Thomas More speaks of the ceruleous or blue-colored sea.

It afforded a solution with now and then a light touch of sky-colour, but nothing near so high as the *ceruleous* tincture of silver. *Boyle,*

From thee the sapphire solid ether takes
Its hue *cerulean.* *Thomson's Summer.*

On spring's fair lap, *cerulean sisters!* pour
From airy urns the sun-illumined shower,
Feed with the dulcet drops my tender broods,
Mellifluous flowers, and aromatic buds. *Darwin.*

No meretricious graces to beguile,
No clustering ornaments to clog the pile;
From ostentation as from weakness free,
It stands like the *cerulean* arch we see,
Majestic in its own simplicity. *Cowper.*

Cerumen. See Anatomy.

CE'RUSE, *n. s.* *Cerussa*, Lat.; white lead. See White Lead.

A preparation of lead with vinegar, which is of a white colour; whence many other things, resembling it in that particular, are by chymists called *ceruse*; as the *ceruse* of antimony, and the like. *Quincy.*

Of his visage, children were sore aferd,
Ther n'as quicksilver, litharge, ne brimston,
Boras, *ceruse*, ne oile of tartre non,
Ne oinement that wolde clense or bite. *Chaucer.*

Fair virgins blushed upon him; wedded dames
Bloomed also in less transitory hues;
For both commodities dwell by the Thames,
The painting and the painted; youth, *ceruse*,
Against his heart preferred their usual claims,
Such as no gentleman can quite refuse;
Daughters admired his dress, and pious mothers
Enquired his income; and if he had brothers.
Byron. Don Juan.

Ceruse or Ceruss, white lead. See Lead White.

Ceruse, as a medicine, is used externally, either mixed in ointments, or by sprinkling it on old gleeting and watery ulcers, and in many diseases of the skin. If, when it is reduced into a fine powder, it is received in with the breath in inspiration, and carried down into the lungs, it causes an incurable asthma. Instances of the very pernicious effects of this metal are too often seen among those persons who work lead in any form, but particularly among the workers of white lead.

CERVUS, the deer, in zoology, a genus of quadrupeds, belonging to the order of pecora. The horns are solid, branched, and brittle, covered with a hairy, or rather velvet skin (which falls off at full growth), and growing from the top; they likewise fall off and are renewed annually. There are eight fore teeth in the under jaw, but no dog-teeth. The principal species are the following: 1. C. alces, the elk, or moose deer, the alce or machlis of Pliny, has broad palmated horns, very short beams or none, and a fleshy protuberance on the throat. The neck is much shorter than the head, with a short, thick, upright mane, of a light brown color. The eyes are small, the ears a foot long, very broad and slouching; nostrils very large; the upper lip square, hangs greatly over the lower, and has a deep sulcus in the middle, so as to appear almost bifid. This is the bulkiest animal of the deer kind, being sometimes seventeen hands high, and weighing about 1200 pounds. The female is less than the male, and wants horns. The elks inhabit Europe, America, and Asia, as far as Japan; chiefly frequenting the cold and woody regions. They are found in all the woody tracts of the temperate parts of Russia, but not on the Arctic flats, nor in Kamtschatka. In Siberia they grow to an enormous size, particularly among the mountains. The elk and the moose, according to Mr. Pennant, are the same species; the last derived from musa, the Algonkin name for that animal. These animals reside amidst forests, for the conveniency of browsing the boughs of trees, being prevented from grazing with ease, by the shortness of their necks and length of their legs. They often have recourse to water plants, which they can readily get at by wading. They are very fond of the anagyris fœtida, or stinking bean trefoil, and will uncover the snow with their feet to get at it. In passing through the woods, they carry their heads in a horizontal position, to prevent their horns from being entangled in the branches. They have a singular gait: their pace is a shambling trot, but they go with great swiftness. In their common walk they lift their feet very high, and will without any difficulty clear a gate five feet high. They feed principally in the night. They ruminate like the ox. They go to rut in autumn; are at that time very furious, seeking the female by swimming from isle to isle. These bring two young at a birth, in April, which follow the dam a whole year. During the summer they keep in families. In deep snows they collect in numbers in the forests of pines, for protection from the inclemency of the weather, under the shelter of those ever-greens. They are very inoffensive, except in the rutting season; but when wounded they will turn on the assailant, and attack him with their horns, or trample him to death beneath their great hoofs. Their flesh is extremely sweet and nourishing. The tongues are excellent; but the nose is perfect marrow, and esteemed the greatest delicacy in Canada. The skin makes excellent buff; being strong, soft, and light; yet so thick, that it is said to resist a musket bullet. The Indians dress the hide, and, after soaking it for some time, stretch and render it supple by a lather of the brains in hot water. They not only make their snow shoes of the skin, but, after a chase, form canoes with it; they sew the skins neatly together, cover the seams with an unctuous earth, and embark in them with their spoils to return home. The hair on the neck, withers, and hams of a full-grown elk, is of much use in making mattresses and saddles; being by its great length well adapted for these purposes, and the palmated parts of the horns are farther excavated by the savages, and converted into ladles, which will hold a pint. On all these accounts they are a principal object of chase.

2. C. axis, the axis, has erect rounded horns, with three snags pointing upwards, and no brow antlers. The animals of this genus are very tame, and have the sense of smelling in an exquisite degree. This species is about the size of the fallow-deer; of a light red color; the body beautifully marked with white spots; along the lower part of the sides, next the belly, is a line of white; the tail is long, red above, and white beneath. They are common on the banks of the Ganges, and in the Isle of Ceylon. This species bears the climate of Europe, having been bred in the Prince of Orange's Menagerie at the Hague The larger axis of Pennant is of a reddish brown color, and has very thick, large, strong, and rug

ged three-forked whitish horns. It is as large as a horse, and inhabits the marshes of Borneo and Ceylon.

3. C. capreolus, the roe-buck. has erect, cylindrical branched horns, and forked at the top. His size is only three feet nine inches long, two feet three inches high before, and two feet seven inches high behind; weight from fifty to sixty pounds. Though the least of the deer kind, his figure is most elegant and handsome. His eyes are more brilliant and animated than those of the stag. His limbs are more nimble, his movements quicker, and he bounds seemingly without effort, with equal vigor and agility. His coat or hair is always clean, smooth, and glossy. He never wallows in the mire like the stag, but delights in dry and elevated situations, where the air is purest. He is likewise more crafty, conceals himself with greater address, and derives superior resources from instinct: for though he leaves a stronger scent than the stag, which redoubles the ardor and appetite of the dogs, he knows how to withdraw himself from their pursuit, by the rapidity with which he begins his flight, and by his numerous doublings. As soon as he finds that the first efforts of a rapid flight have been unsuccessful, he repeatedly returns on his former steps, and, after confounding by these opposite movements, he rises from the earth by one long bound, and, retiring to one side, lies down flat on his belly; and in this immoveable situation he allows the whole troop of his deceived enemies to pass very near him. The roe-deer differs from the stag and fallow deer in disposition, temperament, manners, and almost every natural habit. Instead of associating in herds they live in separate families. They are constant in their amours, and never unfaithful like the stag. They rut but once a-year, and only for fifteen days, commencing at the end of October, and ending before the fifteenth day of November. During this period, they suffer not their fawns to remain with them. The sire drives them off, but after the rutting season is past, they return to their mother, and remain with her some time; after which they separate entirely, and remove to a distance from the place which gave them birth. The female goes with young five months and a half, and brings forth about the end of April or beginning of May. She produces two at a time, which she is obliged to conceal from the buck while very young. In ten or twelve days, they acquire strength sufficient to enable them to follow her. When threatened with danger, she hides them in a close thicket, and to preserve them, presents herself to be chased. Roe-bucks prefer a mountainous woody country to a plain one. They were formerly very common in Wales, in the North of England, and in Scotland; but at present the species nowhere exists in Great Britain, except in the Scottish Highlands. In France they are more frequent; they are also found in Italy, Sweden, and Norway; and are also met with in Siberia. Wild roes, during summer, feed on grass; and are very fond of the rubus saxatilis, called in the Highlands the roe-buck-berry; but in winter, when the ground is covered with snow, they browse on the tender branches of the fir and birch.

4. C. dama, or the fallow-deer, buck and doe; with horns branched, recurved, compressed, and palmated at the top. The color is various; reddish, deep brown, white or spotted. This species is very numerous in England; but, except on a few chases, confined in parks. They are easily tamed, and their venison is in high esteem among the luxurious. During rutting-time they will contend with each other for their mistress, but are less fierce than the stag, though equally inconstant. In order to drink, deer plunge their noses very deep under water, and continue them in that situation for a considerable time; but, to obviate any inconveniency, they can open two vents, one at the inner corner of each eye, having a communication with the nose. This extraordinary provision of nature may be of singular service to beasts of chase, by affording them free respiration; these additional nostrils being thrown open when they are hard run. Mr. Pennant has observed the same curious organisation in the antelope. See CAPRA. This species is the jachmur of the Scriptures.

5. C. elaphus, the stag, has long cylindrical ramified horns, bent backwards, and slender sharp brow antlers. The color is generally a reddish brown with some black about the face, and a black line down the hind part of the neck, and between the shoulders. Stags are common in Europe, Barbary, the north of Asia, and America. In spring they shed their horns, which fall off spontaneously, or on rubbing them gently against the branches of trees. The old stags cast their horns first, which happens about the end of February or beginning of March; but the shedding of the horns is advanced by a mild, and retarded by a severe and long winter. As soon as the stags cast their horns, they separate, the young ones only keeping together. They advance into the cultivated country, and remain among brushwood during summer, till their horns are renewed. In this season, they walk with their heads low to prevent their horns from being rubbed against the branches; for they continue to have sensibility till they acquire their full growth. The horns of the oldest stags are not half completed in the middle of May; nor acquire their full length and hardness before the end of July. Those of the younger stags are proportionally later, both in shedding and being renewed. But as soon as they have acquired their full dimensions and solidity, the stags rub them against the trees, to clear them of a skin with which they are covered. Soon after the stags have polished their horns, they begin to feel the rut. Towards the end of August, or beginning of September, they leave the coppice, return to the forests, and search for the hinds. They cry with a loud voice; their neck and throat swell; they become perfectly restless; they strike their horns against trees and hedges; and seem to be transported with fury, chasing from country to country till they find the hinds whom they compel into compliance; for the female at first avoids and flies from the male, and never submits till she be fatigued with the pursuit. When two stags approach the same hind, they furiously fight. If nearly equal in strength, they threaten, paw the ground, set up terrible cries, and attack each other

with such fury, that they often inflict mortal wounds with the strokes of their horns. The combat never terminates but in the defeat or flight of one of the rivals. The stag is very inconstant, having often several females at a time; and when he has but one hind, his attachment to her does not continue above a few days. He then leaves her, goes in quest of another, with whom he remains a still shorter time; and in this manner passes from one to another till he is perfectly exhausted. This ardor lasts only three weeks, during which the stags take very little food, and neither sleep nor rest. Hence, at the end of the rutting season, they are so meagre and exhausted that they recover not their strength for a considerable time. They generally retire to the borders of the forests, feed upon the cultivated fields, and remain there till their strength is re-established. In seasons when acorns and nuts are plentiful, the stags soon recover their strength, and a second rutting frequently happens at the end of October; but it is of much shorter duration than the first. The hinds go with young eight months and some days, and seldom produce more than one fawn. They bring forth in May or the beginning of June, and anxiously conceal their fawns. The young are not called fawns or calves after the sixth month. The knobs of their horns then begin to appear, and they get the name of knobbers till their horns lengthen into spears, and then they are called brocks or staggards. During the first season they never leave their mothers. In winter, the stags and hinds of all ages keep together in flocks, which are always more numerous in proportion to the rigor of the season. They separate in spring: the hinds retire to bring forth; and, during this period, the flocks consist only of knobbers and young stags. In general, the stags are inclined to associate, and nothing but fear or necessity obliges them to disperse. The life of the stag is spent in alternate plenty and want, vigor and debility, without having any change introduced into his constitution by these opposite extremes. He grows five or six years, and lives to thirty-five or forty years. What has been reported concerning the longevity of the stag, is only a popular prejudice, which has prevailed ever since the days of Aristotle; an account is given of a stag taken by Charles VI. in the forest of Senlis, with a collar, upon which was written, Cæsar hoc mihi donavit; people rather choosing to believe that this animal had lived 1000 years, and had his collar from a Roman emperor, instead of supposing that he came from Germany, where all the emperors take the name of Cæsar.

The stag has a fine eye, an acute smell, and an excellent ear. When listening he raises his head, erects his ears, and hears from a great distance. He is a simple, and yet a curious and crafty animal. When hissed or called to from a distance, he stops short, and looks stedfastly, and with a kind of admiration, at carriages, cattle, or men; and if they have neither arms nor dogs, he moves on unconcernedly, and without flying. He appears to listen, with great delight, to the shepherd's pipe, and the hunters sometimes employ this artifice to deceive him. In general, he is less afraid of men than of dogs, and is never suspicious, or uses any arts of concealment, but in proportion to the disturbance he has received. He eats slow, and has a choice in the aliment; and after his stomach is full, he lies down and ruminates at leisure. He seems to ruminate with less facility than the ox. It is only by violent efforts that the stag can make the food rise from the first stomach. His voice is stronger and more quivering, in proportion as he advances in years. The voice of the hind is shorter and more feeble. She never bellows from love, but from fear. The stag, during the rutting season, bellows dreadfully, and is then so transported, that nothing terrifies him; he is therefore easily surprised; as he is loaded with fat, he cannot keep long before the dogs. But he is dangerous when at bay, and attacks the dogs with fury. He drinks no water in winter nor in spring, the dews and tender herbage being then sufficient to extinguish his thirst; but during the parching heats of summer, to obtain drink, he frequents the brooks, the marshes, and the fountains; and, in the season of love, he is so overheated, that he searches everywhere for water, not only to satisfy his immoderate thirst; but to bathe and refresh his body. He then swims easier than at any other time, and has been observed crossing very large rivers. It has even been alleged, that attracted by the odor of the hinds, the stags in the rutting season, throw themselves into the sea, and pass from one island to another at the distance of several leagues. They leap still more nimbly than they swim; for, when pursued, they easily clear a hedge, pale, or fence of six feet high. Their food varies in different seasons. In autumn, after rutting, they search for the buds of green shrubs, the flowers of broom or heath, the leaves of brambles, &c. During the snows of winter they feed upon the bark, moss, &c. of trees, and in mild weather they browse in the wheat fields. In the beginning of spring, they go in quest of the catkins of the poplar, willow, and hazel trees, the flowers and buds of the cornel tree, &c. In summer when they have great choice they prefer rye to all other grain, and the black berry-bearing alder to all other wood. The flesh of the fawn is very good: that of the hind and knobber not bad; but that of the stag has always a strong and disagreeable taste. The skin and the horns are the most useful parts of this animal. The skin makes a pliable and very durable leather. The horns are used by cutlers, sword slippers, &c. and a volatile spirit, much employed in medicine, is extracted from them by chemists. In America, stags feed eagerly on the broad-leaved kalmia; although that plant is poison to all other horned animals. The American stags grow very fat: their tallow is much esteemed for candles. In Britain the stag is become less common than formerly; its excessive viciousness during the rutting season, and the badness of its flesh, induce most people to part with the species. Stags are still found wild in the Highlands of Scotland, in herds of 400 or 500 ranging at full liberty over the hills of the north. Formerly the great Highland chieftains used to hunt with the magnificence of eastern monarchs, assembling 4000 or 5000 of their clan, who drove the deer into the toils or to the stations the lairds had placed themselves in: but, as this pretence was frequently used to col-

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Laplanders this animal is a substitute for
rse, the cow, the goat, and the sheep; and
r only wealth: the milk affords them cheese ,
sh food; the skin cloathing; the tendons
strings; and when split, thread; the horns
; the bones, spoons. During winter it sup-
the want of a horse, and draws their sledges
amazing swiftness over the frozen lakes and
s, or over the snow which at that time covers
whole country. A Laplander is rich who is
essed of a herd of 1000 rein deer. In au-
n they seek the highest hills, to avoid the
land gad-fly, which at that time deposits its
s in their skin; it is the pest of these animals,
l numbers die that are thus visited. The mo-
nt a single fly appears, the whole herd instantly
rceive it; they fling up their heads, toss about
eir horns, and at once attempt to fly for shelter
nidst the snows of the loftiest mountains. In
immer they feed on several plants; but during
inter on the rein liverwort (a species of lichen),
which lies far beneath the snow, which they re-
nove with their feet and palmated brow antlers.
The Samoieds, less intelligent than the Laplan-
ders, consider them in no other view than as ani-
mals of draught, to convey them to the chase of
the wild reins; which they kill for the sake of
the skins, either to clothe themselves, or to cover
their tents. They know not the delicacy of the
milk or cheese; but prefer for their repast the
intestines of beasts, or the half-putrid flesh of a
horse, ox, or sheep, which they find dead on the
high road.—The Koreki, a nation of Kamtschatka,
may be placed on a level with the Samoieds.
They keep immense herds of reins; some of the
richest of them to the amount of 10,000 or 20,000;
yet eat none except such as they kill for the sake
of the skins; an article of commerce with their
neighbours the Kamtschatkans; otherwise they
content themselves with the flesh of those which
die by disease or chase. They train them in the
sledge, but neglect them for every domestic purpose.
They couple two to each carriage; and
the deer will travel 150 versts in a day, that
is, 112 English miles. They castrate the males
by piercing the spermatic arteries, and tying the
scrotum tight with a thong. The savage and
uninformed Esquimaux and Greenlanders, who
possess, amidst their snows, these beautiful animals,
neglect not only the domestic uses, but
even are ignorant of their advantage in the sledge.
The flesh of the rein is the most coveted part of
their food; they eat it raw, dressed, and dried
and smoked with the snow lichen. The wearied
hunters will drink the raw blood; but it is usually
dressed with the berries of the heath; they eagerly
devour the contents of the stomach, but use the
intestines boiled. The skin, sometimes a part of
their clothing, dressed with the hair on, is soft
and pliant; it forms also the inner lining of their
tents, and most excellent blankets. The tendons
are their bow-strings, and when split are the
threads with which they sew their jackets. The
rein-deers are found in the neighbourhood of
Hudson's Bay, in most amazing numbers, columns
of 8000 or 10,000 are seen annually passing
from north to south in March and April,
driven out of the woods by the musquitoes, seeking
refreshment on the shore, and a quiet place to

drop their young. They go to rut in September, and the males soon after shed their horns; they are at that season very fat, but so rank and musky as not to be eatable. The females drop their young in June, in the most sequestered spots they can find; and then they likewise lose their horns. Beasts of prey follow the herds: first, the wolves, who single out the stragglers (for they fear to attack the drove), detach and hunt them down; the foxes attend at a distance, to pick up the offals left by the former. In autumn the deer with the fawns re-migrate northward. The Indians are very attentive to their motions; for the rein forms the chief part not only of their dress but of their food. They often kill multitudes for the sake of their tongues only; but generally they separate the flesh from the bones, and preserve it by drying it in the smoke; they also save the fat, and sell it to the English in bladders, who use it in frying instead of butter. The skins are also an article of commerce. Several attempts have been made to introduce this useful animal to other countries, but they have hitherto proved unsuccessful. Sir. H. Liddell brought over a flock in 1786, but they all died of the rot on account of the unaccustomed richness of their pasture. Mr. Bullock, in 1821, prevailed on a Lapland shepherd to accompany some of them to England, where they were exhibited in Piccadilly; and after the novelty was over, they were sent to Abberley Hall, the seat of Sir C. Smith, where two were living in 1824.

12. C. Virginianus, the Virginian deer of Pennant, has slender horns bending much forwards, very slightly palmated at the extremities, with numerous branches on the interior edges, but no brow antlers. It inhabits Virginia and Carolina, greatly resembles the fallow deer, but is higher at the shoulders, and has a longer tail and longer legs. The color is a cinereous brown or ash color. These animals are gregarious, very active, restless, and easily domesticated. They are extremely numerous in all the territory south of Canada; but especially in the vast savannahs contiguous to the Mississippi, and the great rivers which flow into it, They graze in herds innumerable, along with the stags and buffaloes. They are capable of being tamed, and when properly trained, are used by the Indians to decoy the wild deer (especially in the rutting season), within shot. Both bucks and does herd from September to March; after that they separate, and the does secrete themselves to bring forth, and are found with difficulty. The bucks from this time keep separate till the amorous season of September revolves. The deer begin to feed as soon as night begins; and sometimes, in the rainy season, in the day; otherwise they seldom or never quit their haunts. Those which live near the shores are lean, subject to worms in their head and throats, generated from the eggs deposited in those parts. Those that frequent the hills and savannahs are in better case. In hard winters they will feed on the long moss which hangs from the trees on the northern parts. These and other cloven footed quadrupeds of America are very fond of salt, and resort eagerly to the places impregnated with it. They are always seen in great numbers in the spots where the ground has been torn by torrents or other accidents, where they are seen licking the earth. Such spots are called licking places. The huntsmen are sure of finding the game there; for notwithstanding they are often disturbed, the buffaloes and deer are so passionately fond of the savory regale, as to bid defiance to all danger, and return in droves to their favorite haunts. See DEER.

CERVUS VOLANS, in entomology, a name given by authors to the stag-fly, or horned beetle, a very large species of beetles with horns sloped, and something like those of the stag. It is found in Essex

CERYX, in antiquity, a sort of public crier, appointed to proclaim or publish things aloud in assemblies. The ceryx among the Greeks answered to the præco among the Romans. Our criers have only a small part of their office and authority. There were two kinds of ceryces, civil and sacred. The former were those appointed to call assemblies and make silence therein; also to go on messages, and do the office of our heralds, &c. The sacred ceryces were a sort of priests, whose office was to proclaim silence in the public games and sacrifices, publish the names of the conquerors, proclaim feasts, and the like. The priesthood of the ceryces was annexed to a particular family, the descendents of Ceryx, son of Eumolpus. To them it also belonged to lead solemn victims to slaughter. Before the ceremonies began, they called silence in the assembly, by the formula, Ευφημειτε σιγη πας εςω λαως; answering to the favete linguis of the Romans. When the service was over, they dismissed the people with this formula, Λαων αφεσις. Ite, missa est.

CESARE, among logicians, one of the modes of the second figure of syllogisms; the minor proposition of which is a universal affirmative, and the other two universal negatives; thus,

cE No immoral books ought to be printed;
sA But every obscene book is immoral;
rE Therefore no obscene books ought to be printed.

CESA'RIAN, *adj.* }
CESA'REAN } From Cæsar (see the quotation from Quincy), or rather from Lat. *cædo, cæsum*, and a circumstance in his birth which seems to have given the name to his family.

> The *Cesarian* section is cutting a child out of the womb, either dead or alive, when it cannot otherwise be delivered. Which circumstance, it is said, first gave the name of Cæsar to the Roman family so called. *Quincy.*

> Rooted where once the Adrian wave flowed o'er,
> To where the last *Cesarian* fortress stood. *Byron.*

CESENATICO, a town of the late Italian republic, in the department of the Rubicon, near the sea; and now belonging to the states of the church. It has a good harbour, and a well constructed canal, on the bridge over which are two marble Corinthian pillars. The inhabitants of this town having arrested a messenger with despatches, the English, in 1800, set fire to the moles of the harbour, and burnt or sunk sixteen vessels. It is sixteen miles south-east of Ravenna.

CESPITOSÆ PLANTÆ, (from *cespes*, turf or sod), plants which produce many stems from one root, and thence form a close thick carpet on the surface of the earth.

ıys from Lat. vy. Dr. Johnensus, a tax; but ems to be *assesso*, ıe or levy; a tax eu used by Shaksthe phrase, say the ırom a cess, tax, or

ach land there is in all quantity thereof we may ınce issuing thereout. *Spenser on Ireland.*

;ed upon the country somesoldiers, when they lie in *Id.*

t Cutt's saddle, put a few poor jade is wrung in the *Shakspeare. Henry IV.*

From Lat. *cædo.* To give place; to yield; often synonymous with Cede, which see. But meaning also to omit a legal duty.

ceaseth or neglecteth so long to longing to him, as that by his *cess*, ırreth the danger of law, and hath, e writ cessavit brought against him. d the tenant *ceaseth*, such phrase is d as if it were said, the tenant *cesseth* h he ought, or is bound, to do by his ent. *Cowell.*

not produced without some resistance, air or the body percussed; for if there ielding, or *cession*, it produceth no sound. *Bacon's Natural History.*

y in their council would make and secure peace they can with France, by a *cession* of to that crown, in exchange for other pro- *Temple.*

sionary bankrupt is one who has delivered up effects. *Martin.*

the parts of the strucken body be so easily *cessible*, ithout difficulty the stroke can divide them, then nters into such a body, till it hath spent its force. *Digby on the Soul.*

If the subject strucken be of a proportionate *cessility*, it seems to dull and deaden the stroke; whereas, if the thing strucken be hard, the stroke seems to lose no force, but to work a greater effect. *Id.*

That none of the princes or states to whom these *cessions* were made, should call their subjects to account for any part of their conduct while under the dominion of their enemies, but should bury all past transactions in oblivion. *Robertson's Charles V.*

France had positively declared that she would not evacuate the six towns before the requisite *cession* was made to Sweden; and her honour seemed now engaged to support that declaration. *Hume.*

CESSATION. Lat. *cessatio*; Fr. *cessation*. Intermission, stoppage, from whatever cause; rest.

The day was yearly observed for a festival, by *cessation* from labour, and by resorting to church. *Hayward.*

True piety, without *cessation* tost
By theories, the practick part is lost. *Denham.*

When the succours of the poor protestants in Ireland were diverted, I was intreated to get them some respite, by a *cessation*. *King Charles.*

The rising of a parliament is a kind of *cessation* from politicks. *Addison's Freeholder.*

The serum, which is mixed with an alkali, being poured out to that which is mixed with an acid, raiseth an effervescence; at the *cessation* of which, the salts, of which the acid was composed, will be regenerated. *Arbuthnot on Aliments.*

To this those were invited whom the *cessation* of war deprived of employment, and made burthensome to their country. *Dr. Johnson.*

He who trusts one whom he designs to sue, is criminal by the act of trust; the *cessation* of such insidious traffick is to be desired, and no reason can be given why a change of the law should impair any other. *Idler.*

Cessation of Arms. When the commander of a place finds things reduced to an extremity, so that he must either surrender, or sacrifice the garrison and inhabitants to the mercy of the enemy, he plants a white flag on the breach, or beats the chamade; on which a cessation of hostilities commences, to give time for a capitulation.

Cession, in law, an act by which a person surrenders and transmits to another person a right which belonged to himself. Cession is more particularly used in the civil law for a voluntary surrender of a person's effects to his creditors, to avoid imprisonment. See Bankrupt. In several places the cession carried with it a mark of infamy, and obliged the person to wear a green cap or bonnet; at Lucca an orange one: to neglect this was to forfeit the privileges of the cession. This was originally intended to signify that the cessionary was become poor, through his own folly. The Italian lawyers describe the ceremony of the cession to consist in striking the bare breech three times against a stone, called lapis vituperii, in presence of the judge. Formerly it consisted in giving up the girdles and keys in court: the ancients using to carry at their girdles the chief utensils wherewith they got their living; as the scrivener his escritoire, the merchant his bag, &c. The form of cession among the ancient Gauls and Romans was as follows: the cessionary gathered up dust in his left hand from the four corners of the house, and standing on the threshold, holding the doorpost in his right hand, threw the dust back over his shoulder; then stripping to the shirt, and quitting his girdle and bags, he jumped with a pole over a hedge; hereby letting the world know, that he had nothing left, and that when he jumped all he was worth was in the air with him.

Cession, in the ecclesiastical law, is when an ecclesiastical person is created a bishop without dispensation, or being otherwise qualified. In both these cases, their first benefices become void by cession, without any resignation. To those livings that the person had, who was created bishop, the king may present for that time, whosoever be patron; and in the other case the patron may present: but by dispensation of retainder, a bishop may retain some or all the preferments he had, before he was made bishop.

CESTRUM, bastard jasmine, a genus of the monogynia order and pentandria class of plants: natural order twenty-eighth, luridæ: cor. funnel-shaped; the stamina each sending out a little tooth about the middle of the inside: FRUIT, berry, one-celled, many seeded. There are sixteen species, natives of the warmest parts of America; and cannot be preserved in this country without artificial heat. They are flowering shrubs, rising in height from five to twelve feet, with flowers of a white or pale yellow color. The flowers of one species, called Badmington jasmine, emit a strong scent after sun-set. They may be propagated either by seed or cuttings.

CESTUI, a French word, signifying he or him, frequently used in the old English law writings. Thus, Cestui qui trust, a person who has lands, &c. committed to him for the benefit of another; and if such person does not perform his trust, he is compellable to it in Chancery. Cestui qui vie, one for whose life any lands, &c. are granted. Cestui qui use, a person to whose use any one is infeoffed of lands or tenements. Formerly the feoffees to uses were deemed owners of land, but now the possession is adjudged in cestui qui use.

CESTUS, *n. s.* Lat. *cestus;* French *ceste.* The girdle of Venus. Collins, in his Ode on the Poetical Character, speaks of Fancy's '*cest* of amplest power,' and it is well known the Latin word was applied to any girdle.

> Venus, without any ornament but her own beauties, not so much as her own *cestus*. *Addison's Spectator.*

CESTUS, CESTUM, or CESTON, among the ancient poets, was a fine embroidered girdle, said to be worn by Venus, to which Homer ascribes the power of charming and conciliating love. Also a kind of glove used by the ancient pugilists. The Greeks had four different sorts of cestus. The first, which was called imantes, was made of the hide of an ox, dried but not dressed. The second, called myrmecas, was covered with a metal. The third, named meliques, was made of thin leathern thongs; and did not cover either the wrist or fingers, but only the back of the hand. The fourth, which was called sphoeroe, the thick glove, was covered with lead to render the blow more destructive.

CETA'CEOUS, *adj.* Lat. *cete*, whales. Of the whale kind.

> Such fishes as have lungs or respiration are not without the wezzon, as whales and *cetaceous* animals. *Browne's Vulgar Errours.*

> He hath created variety of these *cetaceous* fishes, which converse chiefly in the northern seas, whose whole body being encompassed round with a copious fat or blubber, it is enabled to abide the greatest cold of the sea water. *Ray on the Creation.*

CETE, the name of Linnæus's seventh order of mammalia, comprehending the monodon, balæna, physeter, and delphinus.

CETIC ACID, a name given by Chevreul to a supposed peculiar principle of spermaceti, which he has lately found to be the substance he has called margarine, combined with a fatty matter. It is a white solid substance fusible at nearly the same point as spermaceti, but which does not, on cooling, crystallise in plates. It is insoluble in water, but much more soluble in alcohol than spermaceti, and is susceptible of union with various bases, with which it forms salts or soaps.

CETINE, the name given by Chevreul to spermaceti. See CHEMISTRY, FAT and SPERMACETI.

CETTE, or SETTE, a populous and well-built sea-port of France, in Languedoc, situated at the mouth of a canal on a sand-bank between the Mediterranean and the lake of Thau. The harbour is convenient and protected by several forts. It has a large sugar refinery; a good export trade in wine; a soap work, and a tobacco manufactory; a neighbouring salt lake abounds also in that mineral. Population 8000. It is eighteen miles south-west of Montpelier.

CETUS, in astronomy, a large constellation of the southern hemisphere, under Pisces, and next the water of Aquarius. In the mandible of cetus is a variable star which appears and disappears periodically, passing through the several degrees of magnitude, in about 333 days. See ASTRONOMY.

CETUS, in mythology, the sea monster which Neptune, at the suit of the nymphs, sent to devour Andromeda for the pride of her mother, and which, being killed by Perseus, was translated to the stars.

CEVADIC ACID, this is produced by the action of potass on the fat matter of the cevadilla, a plant from Senegal, of the delphinium and aconite class. Cevadic acid was discovered by Pelletier and Caventou. It is in the form of needles, or fine white crystalline concretions. Its odor is analogous to that of butyric acid. It is soluble in water, and, like other acids, unites with bases.

CEVENNES, or SEVENNES, a chain of mountains in the south of France, and ci-devant province of Languedoc, remarkable for the frequent meetings of the Protestants in the seventeenth century, and as a place of security for them against the tyranny of their popish rulers. It extends through the departments of the Upper Loire, Ardeche, and Gard, and is connected with the mountains of the Vivarais and Gevaudan. Though not so lofty as the mountains of Auvergne, they are as rugged and almost as cold. In Queen Anne's reign an attempt was made to assist the Protestants secluded here, by an English fleet in the Mediterranean; but the French had occupied all the passes. Fortunately the age of bigotry is now, if revived, less powerful, in France.

CEUTA, a sea-port town of Morocco, immediately opposite to Gibraltar. It is near the Apes mountain, the ancient Abyla, one of the pillars of Hercules, and the only settlement which Spain retains of her former possessions in Morocco. John, king of Portugal, took it in 1409; and, after the death of Sebastian, Spain again received it, with other dominions of Portugal. It was finally ceded to the Spanish crown by the treaty of Lisbon in 1688. In 1694, and for six years following, it was kept in blockade by the Moors; but it is nearly impregnable, and they were obliged to raise the siege. It has a good but small harbour.

CEYLON, a large island in the Indian Ocean, separated from the south-eastern extremity of the Coromandel coast by a strait called Manaar or Manar, which is crossed by a narrow ridge of rocks and sand, called Adam's Bridge; the greatest depth over which at high water is from three

CETINE, the name given by Chevreul to spe
aceti. See CHEMISTRY, FAT and SPERMACETI.
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to four feet. It is situated at the entrance of the Bay of Bengal westward, and distant from Cape Comorin in Hindostan about 140 miles, but the nearest approach it makes to that continent is at Point Calymere to the north, hardly more than one-fourth of that distance. It lies between the parallels of 5° 50′ and 9° 50′ N. latitude, and between 79° 50′ and 82° 10′ E. longitude. It is nearly oval, resembling in general outline the shape of a pear, its extreme length being about 280 miles, and its breadth about 170. The most elevated ground is in the south, the mountains gradually sinking into an extensive table land, which occupies the centre of the island. On the east the shore is bold and rocky and the water deep: the north and north-west coasts, from Point Pedro to Columbo or Colom, are flat and indented with bays and inlets from the sea, the largest of which extends almost across the island from Mullipati to Jafnapatam The peninsula of that name is formed by this indentation, round which lie a cluster of islands, separated by narrow channels from the body of the island. The north-west coast is so full of sand-banks and shallows that vessels of a large size cannot approach the harbours. Trincomalé and Point de Galle afford anchorage for the largest ships, and Columbo at certain seasons. This island is bounded on the west, south, and east by the Indian Ocean, on the north-west by the southern part of Hindostan, and on the north-east by the Bay of Bengal.

In the interior there are many steep and lofty mountains, covered with forests and abounding in almost impenetrable jungles, which completely surround the king of Candy's dominions. The most lofty range divides the island nearly into two parts, the southern point of which, Adam's Peak, in latitude nearly 7° N., and longitude about 80° 40′ E., rises upwards of 6000 feet in height above the level of the sea; another ridge, called Namam Kuli Kandi, is about 5500 feet high; another, Neuvera Cliya, rises 5000 feet with a circumference of not quite twenty miles; and another is about 4000 feet high; in general, however, the mountainous region does not exceed from one to two thousand feet in perpendicular height. The elevation of the hilly region, between the mountains and the shore may be estimated on the average at 500 feet; and that of the shore near the sea at fifty. Adam's Peak is visible more than forty miles out at sea.

Ceylon was known to the ancients by the name of Taprobane; the Sanscrit name is Tapobon, or the hallowed groves or wilderness of prayer; the natives call it Lanca, the Holy Land; its name Zeilan, or Ceylon, is probably derived from Sinhal, the lions; the native name of the inhabitants, Cingalese, comes from the Indian name Sing, a lion; which seems also to be the origin of Serlen-dibra and Serendib, by the latter of which names it is known to the Mahommedan nations.

There are no very considerable rivers, except the Malwaganga or Mahaville-ganga, the Wallewe or Neel-ganga, and the Mullwadda, all rising from Adam's Peak; the first flowing northward into Trincomalé Bay, the second taking a southerly course, and falling into the sea about thirty miles east of Cape Comorin, and the last flowing north-west and west to its mouth at Mutwal, a little north of Columbo. These rivers are rendered unfit for navigation to any great extent from the sea, by reason of the great beds of rock and the rapid descent from the hills. There are several lakes, valuable as means of navigable communication, and for the abundance of their fish. Of these, the lagunes near Negombo and Colombo on the western coast, and the tanks of Padiviel Colom in the interior northward, and Cattû-arro on the north-west, which are both several miles in circumference, are the chief. The principal gulfs and bays are those of Trincomalé on the east, another in the north to the south of Jaffra peninsula, and another on the west running up to Putulang.

Although Ceylon lies so near the equator, the heat is not so excessive as on the neighbouring coast of Coromandel; this is especially the case on the coast from the free circulation of the sea breezes. The mountains and table-land in the interior produce the same effect as the ghauts in Hindostan; these form a barrier to the periodical winds or monsoons, and a corresponding change of season occurs. While the Malabar coast is visited in the months of May, June, and July with hurricanes, torrents of rain, and tremendous storms of thunder and lightning, the western coast of Ceylon experiences the same visitation, while the weather is calm and dry on the northern and eastern sides of the island, and also on the coast of Coromandel. On the contrary, when in October and November the north-east monsoon assails the eastern side of the peninsula, the northern and eastern sides of the island have abundance of rain, while it is extremely dry on the opposite shores. In the central region there is a material difference, on account of the greater elevation; in March and April the rains fall, but accompanied in the highest parts with severer storms than are felt in the table land of India. On the south the medium of the thermometer throughout the year is 82° with trifling variations; on the north it is 86°, and the maximum much greater. The climate in the interior is very inimical to an European constitution, the air confined between the mountains, the marshes, and close vegetation producing what is called in India the jungle fever. The berry-berry, an endemial disease, a kind of dropsy, proves fatal in a few days; the leprosy and elephantiasis are also common.

The varieties of primitive rock in this island, according to Dr. Davy, are extremely numerous, yet the species are few and ill defined. That which most prevails is granite or gneiss, the others are quartz rock, hornblende rock, and dolomite. The varieties of granite and gneiss (we quote from this intelligent author) 'are innumerable, passing often from one to another, and occasionally changing their character altogether, and assuming appearances for which, in small masses, it would be difficult to afford appropriate names. These changes, and endless varieties depend chiefly on composition, on the proportions of the elements, on the excess or deficiency of one or more, or on the addition of new ingredients, not to mention mechanical structure, variation of which, though obscure in relation to causes, has a manifest effect in modifying appearances. Regular granite is not of very common occurrence. One of the best instances I know of it is in the neighbourhood of Point de Galle, where it is of a gray color, and fine grained Graphic granite is still rarer. The only good example of it with which I am acquainted is at Trincomalé, where it occurs of a beautiful quality on the sea shore, about half a mile below Chapel Point, embedded on a granite rock. The quartz envelops the crystal in very thin hexagonal or trigonal cases, so that nothing can be more different in appearance than the longitudinal and transverse fracture of the rock. Neither is sienite common. I have found it in several places in the neighbourhood of Atgalle Meddamahaneura and in some other parts of the Kandyan province. It occurs rather forming a part of rocks of a different kind than in great mountain masses. Well formed gneiss is more abundant than granite. Its structure may be seen in many places, but nowhere more beautiful toan at Amanapoora, in the Kandyan provinces, where it consists of white felspar and quartz, in a finely crystalline state with layers of black mica, containing, disseminated through it, numerous crystals of a light-colored garnet.'

In the interior of Ceylon the native central government of Candy has existed perhaps for 2000 years. At the beginning of the last century its seven tributary states became six, and in the course of it the native powers and possessions were perpetually attacked by the Dutch; the religion of Buddhoo was at an extremely low ebb, its doctrines almost forgotten, and its ceremonies in entire disuse. Embassies were sent more than once to the neighbouring peninsula, to obtain an accession of priests. On the coast the European powers have, for nearly 300 years, been obtaining those important settlements, all of which are now fallen into the hands of the British. The provinces of the coast are twelve in number; and have been thus given: 1. Battikalo. 2. Caltura. 3. Chelaw. 4. Colombo. 5. Galle. 6. Jafnapatam. 7. Manaar. 8. Magampatture. 9. Matura. 10. Patelam. 11. Trincomalé. 12. Wannia.

The late kingdom of Candy, for in point of fact its monarch has been recently dethroned, and the king of Great Britain is the acknowledged sovereign of the whole island, was divided into forty-six districts, beside innumerable subdivisions of hundreds and townships, but very thinly peopled, and containing not three towns of importance.

The entire population of the island is divisible therefore into four parts. 1. The native Singhalese. 2. Malabar colonists. 3. Mahommedan colonists. 4. European settlers. The religion of the first, or native class, is, as we have intimated, that of Buddhoo, and their language a dialect of the Sanscrit. Like the Hindoos, they acknowledge the four principal castes. 1. The Ekshastria wansè, or royal caste. 2. The Brachmina wansè, or caste of Brahmans. 3. Wiessia wansè, composed of three subdivisions, viz. merchants, cultivators of the earth, and shepherds. 4. The Kshoodra wansè (mean or low caste), subdivided into sixty castes. The following are the subdivisions of the two principal castes according to Dr. Davy, and will give the reader an impression of the singular union of secular and religious matters in these distinctions.

I. *Wiessia wansè.*

1. Goewansè . .	Cultivators
2. Nillemakareya .	Shepherds.

II. *Kshoodra wansè.*

1. Carawè . . .	Fishermen.
2. Chandos . . .	Toddy-drawers.
3. Achari . . .	Smiths, &c.
4. Hannawli . .	Taylors.
5. Badda bela badda	Potters.
6. Ambattea people	Barbers.
7. Rada badda .	Washermen.
8. Hâlee . . .	Chalias.
9. Hakooro . .	Jaggery-makers.
10. Hunu baddè .	Chunam or Lime burners.
11. Pannayo . . .	Grass-cutters.
12. Villedurai.	
13. Dodda weddahs	
14. Paduas . .	Paduas. Iron-smelters. Executioners.
15. Barrawa baddè, or Maha baddè	Tom-tom beaters.
16. Handee.	
17. Pallaroo.	
18. Olee.	
19. Radayo.	
20. Palee.	
21. Kinnera baddè.	

Out-castes.

Gattaroo.
Rhodees.

Of no caste, but attached.

The Singalese Christians to the Goewansè.
The Marakkala, or Moormen, to the Carawé.

For the distinguishing tenets of Buddhism, the prevailing religion of the people of Ceylon, see the article BURMHAN EMPIRE. In their religious profession they are thus distinct from India, though the population was first derived from that country. On the taking of Candy by the British nation, missionary societies, and other benevolent institutions, directed their attention to this country; they have occupied various stations, and by late accounts they appear to have some prospect of success. Before that time some had professed Christianity, either according to the tenets of the church of Holland, introduced by the Dutch, or the Papal doctrines, first diffused by the Portuguese; but these are little superior to the Pagans, and retain several of their customs.

Near Trincomalé are seven hot springs, enclosed with a wall. The place is called Cannea, and the springs all flow from the same source, in a low quartz soil. The waters are considered highly efficacious in cutaneous and rheumatic complaints. There is another spring at Kalabowa, of water, so hot that the hand cannot bear it.

The minerals of the island are numerous, and precious stones, of a middle quality, particularly caste'), subdivided into sixty castes. The following are the subdivisions of the two principal castes according to Dr. Davy, and will give the reader an impression of the singular union of secular and religious matters in these distinctions.

I. [illegible] wansè.

1. Goewansè	Cultivators.
2. Nillemakareya	Shepherds.

II. [illegible] wansè.

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2. Chandos	Toddy-drawers.
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18. Olee.	
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20. Palee.	
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The minerals of the island are numerous, and precious stones, of a middle quality, particularly

abundant; for the ruby, the topaz, and the diamond of Ceylon are inferior both to those of Golconda and of the Brasils. Other stones found here are the amethyst, tourmalin, blue and green sapphire, white and black crystal, the cat's-eye, species of opal, and cornelians.

The only metals at present found are said to be iron and manganese; but the iron is never seen in veins. Lead, tin, and quicksilver are also said to have been formerly wrought in the interior, but never to any purpose. In 1797 a mine of the last was discovered at Cotta, six miles from Colombo.

The salt pans of the interior, arising from not less than twenty-two caverns, which furnish nitre and nitrate of lime, afford, with the produce of the salt-lakes, a revenue of £10,000 a year to government. The latter are situated on the south-east coast.

In the strait of Manaar, about fifteen miles from the shore, are found the oyster banks, from which pearls are procured. There are about fourteen in a space of about thirty miles in length by twenty-four broad; in only two of these during the season, that is about two months in the year, the fishery is carried on. The government generally lets the right of fishing, and the time and number of the boats are fixed, the contractor sometimes disposing of his share to the owners of the boats. The bay of Condatchy is the principal rendezvous; the boat crews, about 6000, are roused at midnight by the firing of a gun, and all is bustle and confusion. The boat being anchored, and all ready, the diver ties a heavy stone to his foot and descends; he then leaves the stone, and lying on his belly, collects everything he can lay hold of, puts it into a basket he has with him, and then rises. Few stay longer under water than from a minute to a minute and a half. More than 1000 divers often go down every minute; and their noise and number more effectually preserve them from the sharks, than all the arts of the two necromancers, employed, according to their superstitious notions, to charm them. When the oysters are brought up they are piled in heaps, and left till they are sufficiently decayed to be washed, when the pearls are found in the fleshy part, some yielding several, others none. The fish are like cockles in shape, about nine inches round, but totally unfit for eating. The pearls, when all collected, are passed through sieves of different sized round holes, and sorted for sale, or sometimes sold together at the rate of about £5 an ounce. The revenue arising from this fishery was in the year 1798 about £140,000, but on the average from 1804 to 1814 it did not exceed 60,000, and it has been less since that time. The largest pearls, as big as a large pea, though generally the least perfect, are most valued by the Indians, and usually sold to their princes; the finest of the second, about the size of a middling pea, are strung in necklaces and sent to Europe; a handsome necklace costs from £150 to £300, or a guinea a pearl; but one of the size of peppercorns may be had for £15 or £20. Those of the size of shot are very cheap. The chank or shell fishery on the northern shore is also important, not only as they are sold in various parts of India, and cut into rings for female ornaments, but as a preparation of the divers for the pearl fishery.

The upper provinces of India supply this island with the wheat it consumes; it grows a small quantity of Indian corn, but the chief article of food is rice. The principal agricultural labor consists in the cultivation of that grain. This, however, is not raised in sufficient quantity to obviate the necessity of large importations. It is hoped that foreign supplies will become less necessary, by the improvement and extension of cultivation, and as the noxious jungles of the interior give place to the healthful and productive corn-field. The rice is generally sown in level lands; as the hills are less favorable for retaining sufficient water to keep the soil continually moist, which is indispensably requisite in the cultivation of this grain. But even the sloping sides of the hills are occasionally brought to render their tribute to the Ceylon harvest; in accomplishing which, the natives manifest great ingenuity

Their mode of cultivating the rice is curious. Around the fields intended for the reception of the seed small embankments are raised, to the height of three feet, to retain the water; which is then let in upon the grounds, which are levelled for the purpose, and soon completely inundates them. When the fields begin to get dry, buffalos are introduced to tread them over, according to the scriptural description, Isa. xxxii. 20, or they are turned over with a sort of light plough. The ground thus prepared looks like one large tract of mud; and in this state it receives the rice, which is previously steeped in water, mixed with the lime of burnt shells. The soil is afterwards levelled, and prevented from caking into lumps, by a description of harrow, or rake, which consists of a piece of board, fixed to a pole, drawn along edgewise. As the rice will not thrive except the ground be completely drenched, the fields are carefully embanked against the commencement of the rainy season. They usually sow in July and August, and reap in February. If proper advantage be taken of the monsoons, they sometimes have two crops a year.

From the tenure under which the lands are held, they are required to clear the whole of their fields at the same time. This obliges them to arrange for the whole crop of rice to be ripe together. In this their agricultural labor principally consists. The several kinds of rice which ripen at different periods are, by the manner of sowing, and the quantity of water introduced, made to advance equally. When ripe, instead of reaping it according to the European custom, they pull it up by the roots, and then lay it out to dry. The straw is trodden by oxen, to separate the grain from the ear; and is afterwards beaten in a kind of wooden mortar, to remove the husk. Their inundated fields attract a terrible enemy in the alligator, who frequently enters unperceived, and conceals himself among the embankments. The natives are obliged to examine them with great care, before they venture among the mud and water.

Here are also thirty-nine species of pine, and a variety of ornamental woods and other timber. Ceylon also produces gram, a grain which is used principally for domesticated animals; coriander, cardamoms and a few other kinds of seed. The bringal, the sweet potatoe, the yam, and considerable varieties of the bean, the Portuguese green, and the Indian spinach, are plentiful; also small onions, garlic, and ginger. The pumpkin is sometimes made, by cooking, to resemble turnips and carrots, various species of gourd are rendered by the same means palatable. French beans, and green peas, and some other European vegetables, are raised in private gardens. The soil of the Kandyan hills, has been considered favorable for the cultivation of the potatoe; attempts are also making to raise the English cabbage. Some suppose that wheat will ultimately be grown successfully in the interior provinces. The sugar-cane is but very partially cultivated: it is sold at the bazaars to children, as a kind of luxury, in pieces a few inches long. The most delicious pine-apples are produced in the open fields, after the manner of turnips in England.

But the cinnamon tree merits especial notice among its vegetable productions. In its wild state this tree grows to the height of from twenty to thirty feet, and is about three feet in circumference; but, when cultivated, is not suffered to attain so large a size. There are several species of the cinnamon tree; the finest and most valued is found in the government gardens, and is from four to ten feet in height: the trunk is slender, with numerous branches shooting out from it on every side. The wood is soft, light and porous, in appearance somewhat resembling our osier; a vast number of fibres issue forth from the root, and, shooting out into slender twigs, form a bush around it. The leaf has the appearance of the laurel in shape, but is not of so deep a green; when bruised it has the scent and taste of cloves. The blossom is white, but not very fragrant. The fruit resembles an acorn, but is somewhat smaller; from this the Singhalese extract an oil, which is much esteemed by them. The Dutch governor, M. Falck, who was a native of the island, and whose memory is still held in high esteem, was the first who devoted any particular attention to the cultivation of the cinnamon-tree. His plans were followed up by our government; and considerable tracts of many miles are at present occupied by this valuable tree, which are under the constant superintendence of the Chalias, or Mahabadde Singhalese. An English civilian is placed at the head of this department; and intelligent and assiduous headmen attend to the prosecution of the work. The mode of obtaining the cinnamon, which is the inner bark of this tree, is this: When about three years old, the branches are taken from the stock; the outer bark, or coating, is then scraped off with a knife of a peculiar form, concave on the one side, and curved on the other. With the point of this knife the bark is ripped up longwise, and the curved side is then employed in gradually loosening it from the branch, till it can be taken off entire. In this state it appears in the form of tubes open at one side, the smaller of which being inserted within the larger, they are thus spread out to dry, and by the heat of the sun they contract, until they attain the form in which they are seen in the European markets. The cinnamon thus prepared is safely lodged in the government storehouses, where it undergoes a careful examination and is sorted according to its quality. It is brought to Europe in bundles of about eighty pounds weight, which are packed as closely as possible in the hold of the vessels, and all the interstices filled up with black pepper; which prevents the flavor from evaporating, or the article from being otherwise injured. The best cinnamon is rather pliable, and not much thicker than strong writing-paper. From the stout kind, and the refuse, the oil of cinnamon is prepared; and the water used in the process has also lately become an article of commercial speculation.

A species of bread-fruit, known by the name of the jack-tree, also grows in Ceylon, and is invaluable to the natives. Its manner of growth resembles a chestnut-tree, shooting forth branches in all directions. It often exceeds the bulk and height of the largest oak; the leaves are much used in feeding sheep, and other animals. The fruit grows from the trunk of the tree, or from the principal branches, is of an oval form, and sometimes a foot in length, and often more in circumference, and so heavy that two native men will bend under the weight of a single apple. It is covered with a thick green coat of a scaly appearance, and contains a number of seeds, each enclosed in a fleshy substance, of the size and form of the green fig; this substance is of a yellow color, and of a rich and delicious taste. The seeds resemble a chestnut, and are roasted and eaten in the same manner. The fruit has a strong unpleasant smell and taste when first cut open; but when well washed and steeped in salt water, these entirely disappear. The wood of this tree is employed in all substantial buildings: it is rather weighty, of a yellowish cast, and receives a polish nearly as well as mahogany. It is used in the manufacture of household furniture and looks very handsome.

The cocoa-nut, palmyra, and jack-trees, are highly esteemed by the natives; and furnish a certain resource against the failure of more precarious sustenance. 'The man who plants any one of these useful trees, confers a lasting benefit on himself, and hands down to posterity more certain riches, than can be procured in less genial climates by a life of the most toilsome labor. When the seeds, or slips, are once put into the ground they require no cultivation, no pruning, no kind of attention; but spontaneously advance to maturity, and yield a regular and never-failing produce.'

The banyan-tree is sufficiently remarkable to be noticed. Branches from those which grow horizontally from the trunk, strike into the earth, where they take root, and return their obligations to the parent tree, by giving it support from the newly-formed root. The Singhalese pay divine honors to this tree, and make a pavement round it, which they keep constantly swept. They place lighted lamps images, and sacred flowers under it, and bow before it with great veneration.

the larger, they are thus spread out to dry, and by the heat of the sun they contract, until they attain the form in which they are seen in the European markets. The cinnamon thus prepared is safely lodged in the government store-houses, where it undergoes a careful examination and is sorted according to its quality. It is brought to Europe in bundles of about eighty pounds weight, which are packed as closely as possible in the hold of the vessels, and all the interstices filled up with black pepper; which prevents the flavor from evaporating, or the article from being otherwise injured. The best cinnamon is rather pliable, and not much thicker than strong writing-paper. From the stout kind and the refuse, the oil of cinnamon is prepared; and the water used in the process has also lately become an article of commercial speculation.

A species of bread-fruit, known by the name of the jack-tree, also grows in Ceylon, and is invaluable to the natives. Its manner of growth resembles a chestnut-tree, shooting forth branches in all directions. It often exceeds the bulk and height of the largest oak; the leaves are much used in feeding sheep, and other animals. The fruit grows from the trunk of the tree, or from the principal branches, is of an oval form, and sometimes a foot in length, and often more in circumference, and so heavy that two native men will bend under the weight of a single apple. It is covered with a thick green coat of a scaly appearance, and contains a number of seeds, each enclosed in a fleshy substance, of the size and form of the green fig; this substance is of a yellow color, and of a rich and delicious taste. The seeds resemble a chestnut, and are roasted and eaten in the same manner. The fruit has a strong unpleasant smell and taste when first cut open; but when well washed and steeped in salt water, these entirely disappear. The wood of this tree is employed in all substantial buildings: it is rather weighty, of a yellowish cast, and receives a polish nearly as well as mahogany. It is used in the manufacture of household furniture and looks very handsome.

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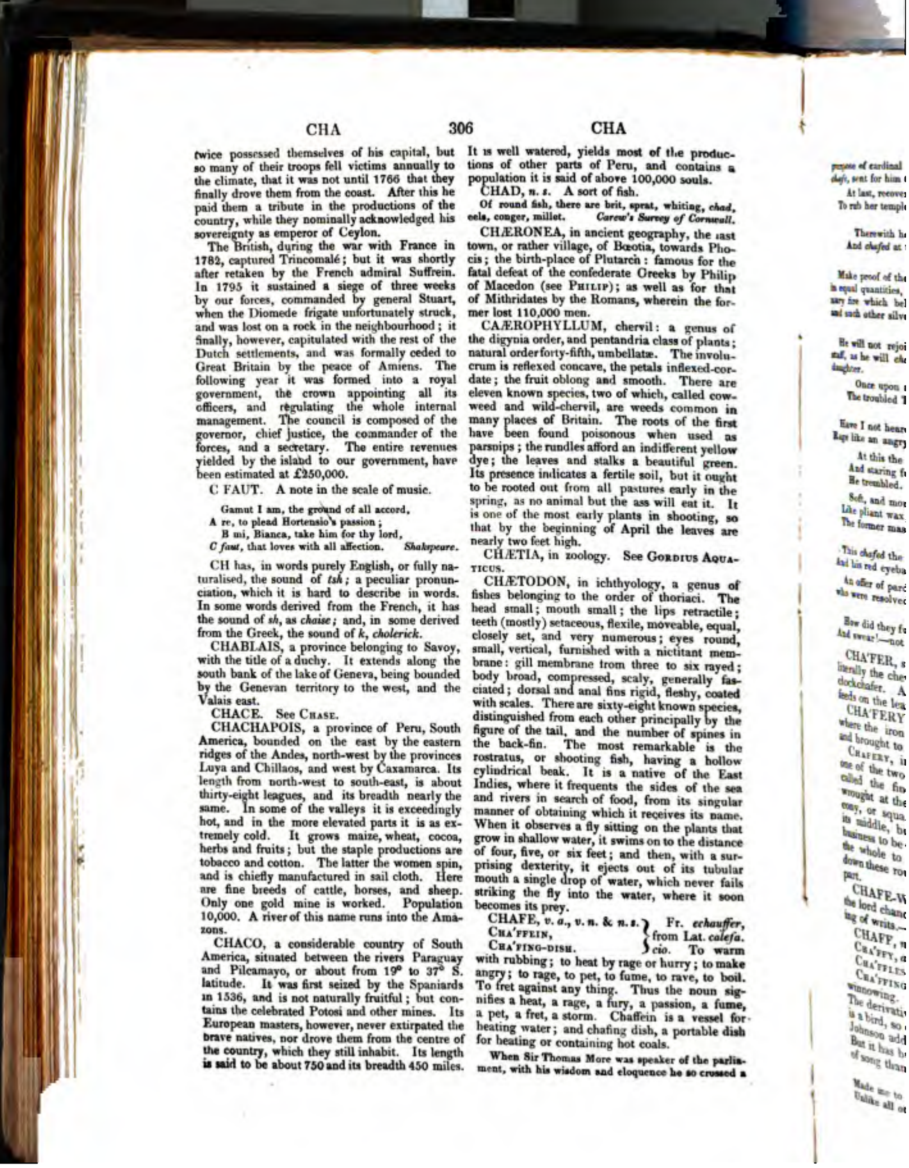
Animals in great variety range in the forests, and shelter in the jungles of this island. The elephants are renowned for their strength and docility; and they are taken alive in considerable numbers. In this proceeding, which is the source of an important revenue to government, the inhabitants display much ingenuity. It has been thus described: 'When the government has fixed on the time of hunting elephants, the snare, which consists of an extensive piece of ground, is marked out with large stakes of wood, in a triangular shape, having an open base towards the forest; and at the apex a narrow funnel, like the cod of a fish-net. The people of the district are then ordered to drive the herds towards the snare; employing for this purpose, guns, and drums, and trumpets, torches and fire-works; or, in the words of a Dutch author, which are in themselves enough to frighten the stoutest elephant: schietgeweer, flambawan, en vuurstuckeryen, pypers, en hoorenblaazers, trommels, en tambolin-heros. On the present occasion, August 1800, this tremendous assemblage commenced its operation at the distance of thirty miles from the trap, advancing slowly in a chain of 3000 men, who were employed in this service two months. As the circle narrows, the fires and the noises approach each other: and when the elephants get within the gaping jaws of the trap, the grand business of the campaign is considered as brought to a termination. The governor and other spectators then resort to the scene of action, and the guns, drums, trumpets, blunderbusses, and thunder, once more rend the air; as their incessant din is judged necessary to terrify the animals, and prevent them from making a retrograde movement. The first compartment of the enclosure is about 1800 feet in circumference; the fold, with which it communicates by a single gate, is not more than 100 feet long and forty broad; and the space is narrowed by a rivulet or canal, five feet deep: beyond this, the funnel gradually contracts into a straight passage, five feet broad, and 100 feet long.

'The next process was, to drive the entrapped elephant into the water-fold. From the water-snare, they are next driven into the long funnel, one at a time; and as they singly arrive at the farthest extremity, a huge beam is let down behind each; when thus hemmed in, the hunters contrive to secure him, by binding his legs with ropes. Two tame elephants are then brought to the gate, and the captive is passed between them. They feel his tusks, if he has any, and his proboscis; sometimes, seemingly, to sooth his anger, and to reconcile him to his new condition; and sometimes, if refractory, they batter him with their heads, till they have reduced him to perfect submission. Thus is he marched to 'the garden of stalls,' where he is very soon completely trained. 'The marching off of this venerable trio,' says Cordiner, 'is a sight truly magnificent; and exhibits a noble specimen of the skill of man, united with the sagacity of the elephant.''—*Quarterly Review.*

A diminutive animal of the deer kind, not larger than a hare, is brought to Colombo, confined in cages for sale. The royal tiger is not to be met with; but the smaller kind, with leopards, tiger cats, foxes, jackalls, hyenas, bears, and an indefinite number of the monkey tribes are found. They have every species of European poultry, with pheasants, red-legged partridges, storks, cranes, herons, various sorts of water-fowls and pigeons. Parrots and parroquets abound, and the honey bird, which directs the natives to the places where the bees have deposited their honey. Ceylon also abounds in reptiles, and particularly in serpents. The Cobra manillas, and the whip and grass snakes are small; but, with the Cobra de capello, or hooded snakes, are poisonous; various harmless species are found in the woods and waters. The rock snake is found here full thirty feet in length; and alligators not far short of that size have been killed in the rivers.

The island is well supplied with both fresh and salt-water fish, many of them very delicate eating. The shark is frequently caught of a prodigious size. This tyrant of the Indian seas not only strikes terror into the finny tribes, but preys also on the human species. Some English gentlemen, one day amusing themselves with bathing in the surf, a short distance from Colpetty, were alarmed by the appearance of a shark. In the midst of their uneasiness, one of the company, a young gentleman named May, exclaimed that he was wounded. The water was instantly discolored with blood; and, as he was hastening to the shore, the monster inflicted a second wound. On being taken out of the sea, he was unable to stand. It was found that the femoral artery was so completely divided, as to cause almost instantaneous death! The fishermen, when angling among the rocks, sometimes stand for hours, with incredible patience, in expectation of their uncertain prey; but are compelled to use the utmost caution, lest they should be surprised by the shark. The divers, we have seen, have little need to fear them. He is, however, sometimes caught with the larger fishing-hooks; and then cut up into small pieces, and sold to inexperienced purchasers as king-fish. The real king-fish is a favorite at a Ceylon table, in flavor much resembling the salmon, but of a different color. Several kinds of flat-fish are brought to the Ceylon markets; among which the pomfret is highly esteemed: fine soals are not uncommon. The coast also supplies mackerel, herrings in great abundance, lobsters, crabs and pawns. Muscles and oysters are also found.

So early as the fourteenth century, Sir John Mandeville appears to have had a correct idea of the extent of this island. At the beginning of the sixteenth century the Portuguese arrived here, and continued to maintain their superiority until 1556: the Dutch having at that period united with the king of Candy to expel them. Colombo, their last settlement, was beseiged by the united Dutch and native forces, upwards of seven months. At this time the king of Candy was a powerful despotic sovereign of the interior, and soon commenced a series of wars with his new friends. The Dutch



twice possessed themselves of his capital, but so many of their troops fell victims annually to the climate, that it was not until 1766 that they finally drove them from the coast. After this he paid them a tribute in the productions of the country, while they nominally acknowledged his sovereignty as emperor of Ceylon.

The British, during the war with France in 1782, captured Trincomalé; but it was shortly after retaken by the French admiral Suffrein. In 1795 it sustained a siege of three weeks by our forces, commanded by general Stuart, when the Diomede frigate unfortunately struck, and was lost on a rock in the neighbourhood; it finally, however, capitulated with the rest of the Dutch settlements, and was formally ceded to Great Britain by the peace of Amiens. The following year it was formed into a royal government, the crown appointing all its officers, and regulating the whole internal management. The council is composed of the governor, chief justice, the commander of the forces, and a secretary. The entire revenues yielded by the island to our government, have been estimated at £250,000.

C FAUT. A note in the scale of music.

> Gamut I am, the ground of all accord,
> A re, to plead Hortensio's passion;
> B mi, Bianca, take him for thy lord,
> *C faut*, that loves with all affection. *Shakspeare.*

CH has, in words purely English, or fully naturalised, the sound of *tsh*; a peculiar pronunciation, which it is hard to describe in words. In some words derived from the French, it has the sound of *sh*, as *chaise*; and, in some derived from the Greek, the sound of *k*, *cholerick*.

CHABLAIS, a province belonging to Savoy, with the title of a duchy. It extends along the south bank of the lake of Geneva, being bounded by the Genevan territory to the west, and the Valais east.

CHACE. See CHASE.

CHACHAPOIS, a province of Peru, South America, bounded on the east by the eastern ridges of the Andes, north-west by the provinces Luya and Chillaos, and west by Caxamarca. Its length from north-west to south-east, is about thirty-eight leagues, and its breadth nearly the same. In some of the valleys it is exceedingly hot, and in the more elevated parts it is as extremely cold. It grows maize, wheat, cocoa, herbs and fruits; but the staple productions are tobacco and cotton. The latter the women spin, and is chiefly manufactured in sail cloth. Here are fine breeds of cattle, horses, and sheep. Only one gold mine is worked. Population 10,000. A river of this name runs into the Amazons.

CHACO, a considerable country of South America, situated between the rivers Paraguay and Pilcamayo, or about from 19° to 37° S. latitude. It was first seized by the Spaniards in 1536, and is not naturally fruitful; but contains the celebrated Potosi and other mines. Its European masters, however, never extirpated the brave natives, nor drove them from the centre of the country, which they still inhabit. Its length is said to be about 750 and its breadth 450 miles. It is well watered, yields most of the productions of other parts of Peru, and contains a population it is said of above 100,000 souls.

CHAD, *n. s.* A sort of fish.

> Of round fish, there are brit, sprat, whiting, *chad*, eels, conger, millet. *Carew's Survey of Cornwall.*

CHÆRONEA, in ancient geography, the last town, or rather village, of Bœotia, towards Phocis; the birth-place of Plutarch: famous for the fatal defeat of the confederate Greeks by Philip of Macedon (see PHILIP); as well as for that of Mithridates by the Romans, wherein the former lost 110,000 men.

CAÆROPHYLLUM, chervil: a genus of the digynia order, and pentandria class of plants; natural order forty-fifth, umbellatæ. The involucrum is reflexed concave, the petals inflexed-cordate; the fruit oblong and smooth. There are eleven known species, two of which, called cowweed and wild-chervil, are weeds common in many places of Britain. The roots of the first have been found poisonous when used as parsnips; the rundles afford an indifferent yellow dye; the leaves and stalks a beautiful green. Its presence indicates a fertile soil, but it ought to be rooted out from all pastures early in the spring, as no animal but the ass will eat it. It is one of the most early plants in shooting, so that by the beginning of April the leaves are nearly two feet high.

CHÆTIA, in zoology. See GORDIUS AQUATICUS.

CHÆTODON, in ichthyology, a genus of fishes belonging to the order of thoriaci. The head small; mouth small; the lips retractile; teeth (mostly) setaceous, flexile, moveable, equal, closely set, and very numerous; eyes round, small, vertical, furnished with a nictitant membrane: gill membrane from three to six rayed; body broad, compressed, scaly, generally fasciated; dorsal and anal fins rigid, fleshy, coated with scales. There are sixty-eight known species, distinguished from each other principally by the figure of the tail, and the number of spines in the back-fin. The most remarkable is the rostratus, or shooting fish, having a hollow cylindrical beak. It is a native of the East Indies, where it frequents the sides of the sea and rivers in search of food, from its singular manner of obtaining which it receives its name. When it observes a fly sitting on the plants that grow in shallow water, it swims on to the distance of four, five, or six feet; and then, with a surprising dexterity, it ejects out of its tubular mouth a single drop of water, which never fails striking the fly into the water, where it soon becomes its prey.

CHAFE, *v. a.*, *v. n.* & *n. s.*
CHA'FFEIN,
CHA'FING-DISH.
} Fr. *echauffer*, from Lat. *calefacio*. To warm with rubbing; to heat by rage or hurry; to make angry; to rage, to pet, to fume, to rave, to boil. To fret against any thing. Thus the noun signifies a heat, a rage, a fury, a passion, a fume, a pet, a fret, a storm. Chaffein is a vessel for heating water; and chafing dish, a portable dish for heating or containing hot coals.

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When Sir Thomas More was speaker of the parliament, with his wisdom and eloquence he so crossed a purpose of cardinal Wolsey's, that the cardinal, in a *chafe*, sent for him to Whitehall. *Camden's Remains.*

At last, recovering heart, he does begin
To rub her temples, and to *chafe* her skin.
Spenser's Faerie Queene.

Therewith he 'gan full terribly to roar,
And *chafed* at that indignity right sore.
Id. Hub. Tale.

Make proof of the incorporation of silver and tin in equal quantities, whether it will endure the ordinary fire which belongeth to *chafingdishes*, posnets, and such other silver vessels.
Bacon's Physical Remains.

He will not rejoice so much at the abuse of Falstaff, as he will *chafe* at the doctor's marrying my daughter. *Shakspeare.*

Once upon a raw and gusty day,
The troubled Tyber *chafing* with his shores.
Id. Julius Cæsar.

Have I not heard the sea puffed up with winds,
Rage like an angry boar *chafed* with sweat? *Id.*

At this the knight grew high in *chafe*,
And staring furiously on Ralph,
He trembled. *Hudibras.*

Soft, and more soft, at every touch it grew;
Like pliant wax, when *chafing* hands reduce
The former mass to form, and frame to use.
Dryden.

This *chafed* the boar; his nostrils flames expire,
And his red eyeballs roll with living fire. *Id.*

An offer of pardon more *chafed* the rage of those, who were resolved to live or die together.
Sir John Hayward.

How did they fume, and stamp, and roar, and *chafe*,
And swear!—not Addison himself was safe. *Pope.*

CHA'FER, *s.* Sax. ceafor; Teut. *kiever*; literally the chewer; called also cockchafer, for clockchafer. A May bug, a kind of beetle that feeds on the leaves of trees.

CHA'FERY, *n. s.* A forge in an iron mill, where the iron is wrought into complete bars, and brought to perfection.—*Phillips.*

CHAFERY, in the iron works, is the name of one of the two principal forges. The other is called the finery. When the iron has been wrought at the finery into what is called an ancony, or square mass, hammered into a bar in its middle, but with its two ends rough, the business to be done at the chafery is the reducing the whole to the same shape, by hammering down these rough ends to the shape of the middle part.

CHAFE-WAX, *n. s.* An officer belonging to the lord chancellor, who fits the wax for the sealing of writs.—*Harris.*

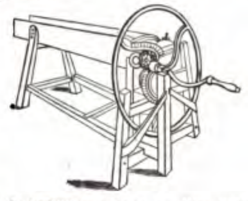
CHAFF, *n. s.*
CHA'FFY, *adj.*
CHA'FFLESS, *adj.*
CHA'FFING, *n.* } Pers. *khah*; Sax. ceaf; Teut. *kaff*; Arm. *scaff*. The husks of corn that are separated by thrashing and winnowing. It is used for anything worthless. The derivatives explain themselves. Chaffinch is a bird, so called because it delights in chaff.—Johnson adds, it is by some admired for its song. But it has but two notes, and is no more a bird of song than the house sparrow.

The love I bear him,
Made me to fan you thus; but the gods made you,
Unlike all others, *chaffless*. *Shakspeare.*

Pleasure with instruction should be joined;
So take the corn, and leave the *chaff* behind.
Dryden.

The *chaffinch*, and other small birds, are injurious to some fruits. *Mortimer.*

CHAFF-CUTTER, a machine for making chaff to feed horses.—The advantages of an easy and expeditious method of cutting straw into chaff, by an engine which could be used by common laborers, have occasioned various attempts to bring such an engine to perfection. One of the most common is that of M'Dougal, which regulates the pressure of the straw with great exactness and facility. A curved knife is fixed on the inside of a wheel which passes in front of a long box containing the straw, and by turning this wheel the straw is cut, and the same operation brings forward the straw by means of a spiral groove.



CHAFF'ER, *v. n. & v. a.*
CHA'FFERER, *n. s.*
CHA'FFERY, *n. s.* } Heb. *copher*; Got. *kaupr*; Teu. *kaaffer*; Lat. *caupo*. To higgle; to bargain; to buy; to exchange.

He *chaffed* chayres in which churchmen were set,
And breach of lawes to privie farm did let.
Spenser. Mother Hubbard's Tale.

Approaching nigh, he never staid to greet,
Ne *chaffer* words, proud courage to provoke.
Faerie Queene.

The third is, merchandise and *chaffery*; that is, buying and selling. *Spenser's State of Ireland.*

Nor rode himself to Paul's, the publick fair,
To *chaffer* for preferments with his gold,
Where bishopricks and sinecures are sold.
Dryden's Fables.

In disputes with chairmen, when your master sends you to *chaffer* with them, take pity, and tell your master that they will not take a farthing less. *Swift.*

CHA'FFWEED, *n. s.* Lat. *gnaphalium*. An herb; the same with cudweed.

CHAGAING, a considerable town of the Birman empire, stands on the Irawaddy river, opposite to Ava. It was the capital of this state, in 1764, and the numerous spires and gilded roofs it presents to the eye, from the various hills on which it is built, render the landscape most splendid. The houses are of timber, and the town carries on an extensive traffic, it being the emporium of all cotton intended for the China market. Here also is a considerable manufacture of marble images of Gaudama, whence the whole Birman empire is supplied. The quarries where the materials are obtained are only a few miles distant.

CHAGRE, a navigable river of South America, in the province of Panama, which has its source in the mountains of the interior, and falls into the ocean, thirty miles W. S. W. of Portobello, in lat. 9° 18' N., long. 80° 16' W. It is navigable for large barks as far as Cruses, where there is a wharf for unloading, and a custom-house. The greater part of the commerce between Portobello and Panama, is conducted on this stream, on the banks of which, great numbers of alligators appear. It traverses a fertile country.

CHAGRI'N, *n. s.* & *v. a.* Fr. *chagrin, chagriner*; to vex; to put out of temper; to teaze; to make uneasy. Perhaps, says Thomson, from Ital. *sgradire*, the contrary of gratiare, to please: from Lat. *gratus*.

> Hear me, and touch Belinda with *chagrin*,
> That single act gives half the world the spleen.
> *Pope.*

> I grieve with the old, for so many additional inconveniences and *chagrins*, more than their small remain of life seemed destined to undergo. *Id. Letters.*

CHAIN, *n. s.* & *v. a.*
CHAIN-PUMP, *n. s.*
CHAIN-SHOT, *n. s.*
CHAIN-WORK, *n. s.*
} Fr. *chaine*; Lat. *catena*; a bond; a manacle; a series of links fastened one within another, applied to various uses, namely: to confine, to fasten, to unite; to keep in a state of slavery. The noun is likewise figuratively used to signify a series linked together, as of causes or thoughts; a succession; a subordination.

> And Pharaoh took off his ring, and put it upon Joseph's hand, and put a gold *chain* about his neck. *Genesis*, xli. 42.

> Nets of chequerwork, and wreaths of *chainwork*, for the chapiters which were upon the tops of the pillars. 1 *Kings.*

> It is not long since the striking of the top-mast, a wonderful great ease to great ships, both at sea and in harbour, hath been devised; together with the *chain-pump*, which takes up twice as much water as the ordinary did; and we have lately added the bonnet and the drabble. *Raleigh's Essays.*

> O Warwick, I do bend my knee with thine,
> And in this vow do *chain* my soul with thine.
> *Shakspeare.*

> They repeal daily any wholesome act established against the rich, and provide more piercing statutes daily to *chain* up and restrain the poor. *Id. Coriolanus.*

> Reign thou in Hell, thy kingdom; let me serve
> In Heaven God, ever blest, and his divine
> Behests obey, worthiest to be obeyed;
> Yet *chains* in Hell, not realms expect. *Milton.*

> Those so mistake the Christian religion, as to think it is only a *chain* of fatal decrees, to deny all liberty of man's choice toward good or evil. *Hammond.*

> A surveyor may as soon, with his *chain*, measure out infinite space, as a philosopher by the quickest flight of mind, reach it; or by thinking, comprehend it. *Locke.*

> In sea fights, oftentimes, the buttock, the brawn of the thigh, and the calf of the leg, are torn off by the *chainshot*, and splinters. *Wiseman's Surgery.*

> This world, 'tis true,
> Was made for Cæsar, but for Titus too:
> And which more blest? who *chained* his country, say,
> Or he whose virtue sighed to lose a day? *Pope.*

> Still in constraint your suffering sex remains,
> Or bound in formal, or in real *chains*. *Id.*
> Silent, but quick, they stoop, his *chains* unbind;
> Once more his limbs are free as mountain wind.
> *Byron's Corsair.*

CHAIN also denotes a kind of string, of twisted wire; serving to hang watches, tweezer-cases, and other valuable toys upon. The invention of this is ascribed to the English; whence, in foreign countries, it is denominated the English chain. These chains are usually either of gold, silver, or gilt copper; the thread or wire of each kind is very fine. In making these chains, a part of the wire is folded into little links of an oval form; the longest diameter about three lines; the shortest, one. These, after they have been exactly soldered, are again folded in two; and then interwoven, by several other threads of the same thickness; some whereof, which pass from one end to the other, imitate the warp of a stuff; and the others, which pass transverse, the woof. There are at least 4000 little links in a chain of four pendants; which are bound so equally, and firmly together, that the whole seems to consist of one entire piece. Of late years, however, the manufacture of this kind of chains, has been almost entirely superseded by that of the polished steel ones; which are much superior in beauty, and are manufactured in great variety of patterns and at all prices, at Birmingham, Sheffield, &c.

CHAIN, in surveying, a measure, consisting of a certain number of links of iron wire, usually 100, serving to take the dimensions of fields, &c. This is what Mersenne takes to be the arvipendium of the ancients. The chain is of various dimensions, as the length or number of links varies: that commonly used in measuring land, called Gunter's chain, is in length four poles or perches; or twenty-two yards; or sixty-six feet, or 100 links; each link being seven inches $\frac{92}{100}$. This chain is peculiarly adapted to land measuring in England, as ten square chains make exactly an English acre. Its chief convenience is in finding readily the numbers contained in a given field. Some instead of chains use ropes; but these are liable to several irregularities; from the different degrees of moisture, and of the force which stretches them. Schwenterus, in his Practical Geometry, tells us, he has observed a rope sixteen feet long, reduced to fifteen in an hour's time, by the mere falling of a hoar frost. To obviate these inconveniences, Wolfius directs, that the little strands whereof the rope consists be twisted contrary ways, and the rope dipped in boiling hot oil; and when dry, drawn through melted wax. A rope thus prepared, will neither gain nor lose anything, even though kept under water all day.

CHAINS, in ship-building, are strong links or plates of iron, the lower ends of which are bolted through the ship's side to the timber.

CHAINS, GOLD, are among the badges of dignity of the chief magistrates of a city, as the lord mayor of London, the lord provost and bailies of Edinburgh, &c.—Something like this obtained among the ancient Gauls: the principal ornament of those in power and authority was a gold chain, which they wore on all occasions;

Still in constraint your suffering sex remains,
Or bound in formal, or in real chains. Id.
Silent, but quick, they stoop, his chains unbind;
Once more his limbs are free as mountain wind.
Byron's Corsair.

Chain also denotes a kind of string, of twist ed wire; serving to hang watches, tweezer-cases, and other valuable toys upon. The invention of this is ascribed to the English; whence, in fo reign countries, it is denominated the English chain. These chains are usually either of gold, silver, or gilt copper; the thread or wire of each kind is very fine. In making these chains, a part of the wire is folded into little links of an oval form; the longest diameter about three ines; the shortest, one. These, after they have been exactly soldered, are again folded in two; and then interwoven, by several other threads of he same thickness; some whereof, which pass rom one end to the other, imitate the warp of stuff; and the others, which pass transverse, he woof. There are at least 4000 little links in chain of four pendants; which are bound so qually, and firmly together, that the whole seems o consist of one entire piece. Of late years, owever, the manufacture of this kind of chains, as been almost entirely superseded by that of he polished steel ones; which are much superior in beauty, and are manufactured in great ariety of patterns and at all prices, at Birmingam, Sheffield, &c.

Chain, in surveying, a measure, consisting of certain number of links of iron wire, usually 00, serving to take the dimensions of fields, &c. This is what Mersenne takes to be the aripenlium of the ancients. The chain is of various limensions, as the length or number of links aries: that commonly used in measuring land, alled Gunter's chain, is in length four poles or erches; or twenty-two yards; or sixty-six feet, r 100 links; each link being seven inches 92 This chain is peculiarly adapted to land measurng in England, as ten square chains make exactly n English acre. Its chief convenience is in inding readily the numbers contained in a given ield. Some instead of chains use ropes; but hese are liable to several irregularities; from the lifferent degrees of moisture, and of the force vhich stretches them. Schwenterus, in his ractical Geometry, tells us, he has observed a ope sixteen feet long, reduced to fifteen in an our's time, by the mere falling of a hoar frost. o obviate these inconveniences, Wolfius directs, hat the little strands whereof the rope consists e twisted contrary ways, and the rope dipped in oiling hot oil; and when dry, drawn through elted wax. A rope thus prepared, will neither ain nor lose anything, even though kept under ater all day.

Chains, in ship-building, are strong links or lates of iron, the lower ends of which are olted through the ship's side to the timber.

Chains, Gold, are among the badges of dignity of the chief magistrates of a city, as the rd mayor of London, the lord provost and ailies of Edinburgh, &c.—Something like this btained among the ancient Gauls: the principal rnament of those in power and authority was a old chain, which they wore on all occasions;

and even in batt e to distinguish them from the common soldiers.

Chains, Hanging in, a kind of punishment inflicted on murderers. By statute 25 Geo. II. c. 37, the judge shall direct such to be executed on the next day but one, unless Sunday intervene; and their bodies to be delivered to the surgeons to be dissected and anatomised: and he may direct them to be hung in chains. This punishment has not been used for many years past in Scotland.

Chain-shot; two bullets or half bullets, fastened together by a chain, which, when they fly open, cut away whatever is before them. Chain-shot is used at sea, to tear down yards or masts, and to cut the shrouds or rigging of a ship.

Chain, Top, on board a ship, a chain to sling the sail yards in time of battle, to prevent them from falling down, when the ropes by which they are hung, happen to be shot away, or rendered incapable of service.

Chain-wales, or Channels, of a ship, porte-boissoirs, are broad and thick planks projecting horizontally from the ship's outside, abreast of and somewhat behind the masts. They are formed to extend the shrouds from each other, and from the middle line of the ship, so as to give a greater support to the masts, as well as to prevent the shrouds from damaging the gunwale, or being hurt by rubbing against it. Every mast has its chain-wales, which are either built above or below the second deck ports in a ship of the line: they are strongly connected to the side by knees, bolts, and standards, besides, being confined thereto by the chains whose upper ends pass through notches on the outer edge of the chain-wales, so as to unite with the shrouds above.

Chain-work, is a term sometimes used in the arts for different species of cloth and other manufacture, in which the threads are linked or united together in the manner of a chain; thus hosiery, tambouring, and various kinds of fancy silk and cotton weaving have been described under this name; as well as the formation of nets for fishing and other purposes. We object to grouping so many unconnected pursuits under this one metaphorical term, and refer the reader to the distinct articles Hosiery, Net-work, Weaving, &c.

CHAJOTLI, or Chayoti, a Mexican fruit of a round shape, and similar in the husk with which it is covered to the chestnut, but four or five times larger, and of a much deeper green color. Its kernel is of a greenish white, and has a large white stone in the middle, like it in substance. It is boiled, and the stone eaten with it. This fruit is produced by a twining perennial plant, the root of which is also good to eat.

CHAIR, *n. s.* & *v.* } Chald. *gahar; καθεδρα;*
Chairman. } Fr. *chaire.* A moveable seat; either stationed in a room, and moveable by hand at pleasure; or borne by men, and carried from place to place; or drawn on wheels by other animals. It is also applied to a seat of authority, dignity, and power; thrones, and other seats of honor and precedency are termed chairs.

And sodenly, or he wos of it ware,
God daunted all his pride and all his bost;
For he so sore fell out of his *chare,*
That it his limmes and his skin to-tare.
So that he neither mighte go ne ride;
But in a *chaire* men about him bare,
Alle forbrused bothe bak and side.
Chaucer's Canterbury Tales.

He makes for England, here to claim the crown.—
Is the *chair* empty! Is the sword unswayed?
Is the king dead? *Shakspeare. K. Richard III.*

If thou be that princely eagle's bird,
Show thy descent by gazing 'gainst the sun;
For *chair* and dukedom, throne and kingdom, say;
Either that's thine, or else thou wert not his. *Id.*

Her grace sat down to rest awhile,
In a rich *chair* of state. *Id. Henry VIII*

The committee of the Commons appointed Mr. Pym to take the *chair.* *Clarendon*

One elbows him, one justles in the shole;
A rafter breaks his head, or *chairman's* pole.
Dryden.

Troy *chairmen* bore the wooden steed,
Pregnant with Greeks, impatient to be freed;
Those bully Greeks, who, as the moderns do,
Instead of paying *chairmen,* run them through.
Swift.

Think what an equipage thou hast in air,
And view with scorn two pages and a *chair.* *Pope.*

Whether thou choose Cervantes' serious air,
Or laugh and shake in Rabelais' easy *chair,*
Or praise the court, or magnify mankind,
Or thy grieved country's copper chains unbind. *Id.*

If a *chair* be defined a seat for a single person, with a back belonging to it, then a stool is a seat for a single person, without a back. *Watts's Logic.*

In assemblies generally one person is chosen *chairman* or moderator, to keep the several speakers to the rules of order. *Id.*

Chair, Cathedra, was anciently used for the pulpit. It is still applied to the place whence professors and regents in universities deliver their lectures, and teach the sciences to their pupils.

Chair, Curule, was an ivory seat, placed on a car, wherein were seated the prime magistrates of Rome, and those to whom the honor of a triumph had been granted. See Curule.

Chair, Sedan, a covered vehicle for carrying a single person, being supported by poles, carried by two men. The number of Sedan chairs for hire in London, was limited by act 12 Geo. I. c. 12, to 400; and no person is obliged to pay for a hackney chair more than the rate allowed by the act for a hackney coach driven two-third parts of the said distance. But the use of hackney coaches and other horse carriages has so completely superseded the sedan, that they are now scarcely ever to be met with except in the establishments of aged persons, who, from a love to the fashions of their youth, have refused to adopt the present more convenient custom.

CHAISE, *n. s.* Fr. *chaise.* A carriage of pleasure drawn by one horse.

Instead of the chariot he might have said the *chaise* of government; for a *chaise* is driven by the person that sits in it. *Addison.*

CHALAZA, a white knotty string at each end of an egg, formed of a plexus of the fibres of the membranes, by which the yolk and white are connected together. See Egg.

CHALCEDON, or Calcedon, anciently called Procerastis and Coleusa, a city of Bithynia, situated at the mouth of the Euxine, on the north extremity of the Thracian Bosphorus, over against Byzantium. Chalcedon became famous on account of the council which was held there A. D. 451, against Eutyches. The emperor Valens caused the walls of this city to be levelled with the ground for siding with Procopius, and the materials to be conveyed to Constantinople, where they were employed in building the famous Valentinian aqueduct. Chalcedon is at present a poor place, known to the Greeks by its ancient name, and to the Turks by that of Cadiaci, i. e. the judge's town.

CHALCEDONY, in natural history, a genus of the semipellucid gems. They are of a regular structure, not tabulated; of a semi-opaque crystalline basis; and variegated with different colors, disposed in form of mists or clouds, and, if nicely examined, found to be owing to an admixture of various colored earths, but imperfectly blended in the mass, and often visible in distinct moleculæ. It has been doubted whether the ancients were acquainted with the stone we call chalcedony; they having described a Chalcedonian carbuncle and emerald, neither of which can at all agree with the characters of our stone; but they have also described a Chalcedonian jasper, which seems to have been the stone they describe by the word turbida, which extremely well agrees with our chalcedony. There are four known species of the chalcedony. 1. A bluish white one. This is the most common of all, and is found in the shape of our flints and pebbles, in masses of two or three inches or more in diameter. It is of a whitish color, with a faint cloud of blue diffused all over it, but always in the greatest degree near the surface. This is less hard than the oriental onyx. The oriental chalcedonies are the only ones of any value; they are found in vast abundance on the shores of rivers in all parts of the East Indies, and frequently come over among the ballast of the East India ships. They are common in Silesia, Bohemia, and other parts of Europe; but with us are less hard, more opaque, and of very little value. 2. The dull milky veined chalcedony. This is a stone of little value; and is sometimes met with among our lapidaries, who mistake it for a kind of nephritic stone. It is of a yellowish white or cream color, with a few milk-white veins. This is principally found in New Spain. 3. The brownish, black, dull, and cloudy chalcedony, known to the ancients by the name of smoky jasper, or jaspis capnitis. This is the least beautiful stone of all the class: it is of a pale brownish white, clouded all over with a blackish mist, as the common chalcedony is with a blue. It is common in the East and West Indies, and in Germany; but is very little valued, and is seldom worked into anything better than the handles of knives. 4. The yellow and red chalcedony is greatly superior to all the rest in beauty; and is in great repute in Italy, though very little known among us. It is naturally composed of an admixture of red and yellow only, on a clouded crystalline basis; but is sometimes found blended with the matter of common chalcedony, and then is mixed with blue. It is all over of the misty hue of the common chalcedony. This is found only in the East Indies, and there not plentifully. The Italians make it into beads, and call these cassidonies; but they are not determinate in the use cf the word, but call beads of several of the agates by the same name. All the chalcedonies readily give fire with steel, and make no effervescence with aqua-fortis.

CHALCEDONIUS is also the name of a genus of earth, in the modern divisions of oryctology, comprising several species of stones which will be described under their specific names. They are described as consisting of silica, a small quantity of alumine, with sometimes about a tenth of lime, and a slight trace of oxide of iron; hard, lightish, shining within, breaking into indeterminate fragments with sharp edges; compact, not mouldering in the air, of a more or less perfectly conchoidal texture; never opake; tough, admitting a high polish, and generally of a common form; not melting before the blow-pipe. See Cornelian, Chalcedony, Onyx, &c.

CHALCIS, in ancient geography, a city of Eubœa in that part which is nearest to Bœotia, first founded by an Athenian colony. There were three other towns of this name in Thrace, Acarnania, and Sicily, all subject to the Corinthians.

CHALCIDIC, Chalcidicum, or Chalcedonium, in ancient architecture, a large magnificent hall belonging to a court of justice. Festus says, it took its name from the city Chalcis. Philander will have it to be the court where affairs of money and coinage were regulated; so called from χαλκος, brass, and δικη justice. Others say, the money was struck in it; and derive the word from χαλκος, brass, and οικος, house. In Vitruvius, it is used for the auditory of a basilica; in other ancient writers for a hall where the heathens imagined their gods dined.

CHALCIDICE, in ancient geography, an eastern district of Macedonia, stretching northwards between the Sinus Toronæus and Singiticus; formerly a part of Thrace, but taken by Philip.

CHALCO'GRAPHER, *n. s.* χαλκογραφος, of χαλκος brass, and γραφω to write or engrave. An engraver in brass.

CHALCO'GRAPHY, *n. s.* χαλκογραφία. Engraving in brass.

CHALCONDYLAS (Demetrius), a learned Greek, born at Constantinople, who left that city after its being taken by the Turks, and afterwards taught Greek in several cities of Italy. He composed a Greek grammar; and died at Milan in 1513.

Chalcondylas (Laonicus), a famous Greek historian of the fifteenth century, born at Athens. He wrote an excellent history of the Turks, from Ottoman, who reigned about A. D. 1300, to Mahomet II. in 1543.

CHALDEA, in ancient geography, 1. in a large sense, included Babylonia; as in the prophecies of Jeremiah and Ezekiel. 2. In a restricted sense, it denoted a province of Babylonia, towards Arabia Deserta; called in Scripture the Land of the Chaldeans. It is said to have been

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named from Chaled the IV. son of Nahor. See BABYLONIA.

CHALDEE, or CHALDAIC, LANGUAGE, that spoken by the Chaldeans. It is a dialect of the HEBREW, which see.

CHALDEE PARAPHRASE. There are three Chaldee paraphrases in Walton's Polyglot; viz. 1. of Onkelos; 2. of Jonathan son of Uziel; and 3. of Jerusalem. See BIBLE.

CHA'LDER, *n. s.* } A dry English measure
CHA'LDRON, *n. s.* } for coals, consisting of
CHA'UDRON, *n. s.* } thirty-six bushels heaped
up, according to the sealed bushel kept at Guildhall, London. The chaldron should weigh two thousand pounds.

CHALDRON, an English measure of dry goods, consisting of thirty-six bushels, heaped up in the form of a cone. See BUSHEL.

CHA'LICE *n.* } Sax. *calic*; Fr. *calice*;
CHA'LICED, *adj.* } Lat. *calix*; a cup, a bowl.
It is generally used for a cup employed in acts of worship; the sacramental chalice is the cup used at the administration of the Lord's Supper. The adjective is obsolete; it is applied by Shakspeare to the cell or cup of a flower.

Hark! hark! the lark at heaven's gate sings,
And Phœbus 'gins arise,
His steeds to water at these springs,
On *chaliced* flowers that lies. *Shakspeare.*

When in your motion you are hot,
And, that he calls for drink, I'll have prepared him
A *chalice* for the nonce. *Id.*

All the church at that time did not think emblematical figures unlawful ornaments of cups or *chalices*. *Stillingfleet.*

CHALICE is peculiarly applied to the cup used to administer the wine in the sacrament, and by the Roman Catholics in the mass. The use of the chalice, or communicating in both kinds, is by the church of Rome denied to the laity, who communicate only in one kind; the clergy alone being allowed the privilege of communicating in both kinds.

CHALIZA, in the Jewish customs, the ceremony whereby a widow pulls off her brother-in-law's shoes, who should espouse her, and thus is at liberty to marry whom she pleases.

CHA'LK, *n. s.* & *v. a.* } *Calck*, Welsh;
CHA'LKY, *adj.* } cealc, cealcytan,
CHA'LK-CUTTER. } Saxon. To chalk is
CHA'LK-PIT. } to use this substance
as a marking or writing instrument; to apply chalk to any of the purposes to which it may be adapted, or for which it is useful. It is used metaphorically for any act of marking, describing, or tracing out.

Chalk is a white fossile, usually reckoned a stone, but by some reckoned among the boles. It is used in medicine as an absorbent, and is celebrated for curing the heartburn. *Chambers.*

He maketh all the stones of the altar as *chalk* stones, that are beaten in sunder. *Isaiah.*

Chalk is of two sorts; the hard, dry, strong *chalk*, which is best for lime; and a soft, unctuous *chalk*, which is best for lands, because it easily dissolves with rain or frost. *Mortimer.*

Land that is *chalked*, if it is not well dunged, will receive but little benefit from the second *chalking*. *Id.*

And this chanon into the crosselet cast
A powder, n'ot I never whereof it wos
Ymade—other of *chalk*, other of glos,
Or somwhat elles. *Chaucer's Cant. Tales.*

Being not propt by ancestry, whose grace
Chalks successours their way. *Shakspeare.*

As far as I could ken the *chalky* cliffs,
When from thy shore the tempest beat us back,
I stood upon the hatches in the storm. *Id.*

Chalky water towards the top of earth is too fretting. *Bacon.*

The beastly rabble then came down
From all the garrets in the town,
And stalls and shopboards in vast swarms,
With new *chalked* bills and rusty arms. *Hudibras.*

With *chalk* I first describe a circle here,
Where these ethereal spirits must appear. *Dryden.*

With these helps I might at least have *chalked* out a way for others, to amend my errours in a like design. *Id.*

The time falls within the compass here *chalked* out by nature, very punctually. *Woodward's Natural History.*

Shells, by the seamen called *chalk eggs*, are dug up commonly in the *chalk-pits*, where the *chalk-cutters* drive a great trade with them. *Id.*

CHALK. The name of this mineral is generally derived from Kreta, and probably the ancients may have used, in place of chalk, the marl found in Creta, the modern Candia; but true chalk occurs no where in that island; on the contrary, it is imported for economical purposes in barrels, from Brusa and Magnesia.

Chalk may be considered as a peculiar formation, and abounds particularly on the south of England, and north of France. Color yellowish white, sometimes snow and grayish white. Its specific gravity is from 2·315 to 2·657.

Chalk is of two kinds: hard, dry and firm, or soft and unctuous. The former sort is the best calculated for burning into lime; but the latter furnishes the best manure for lands. Both these species, however, are an excellent manure for sandy soils, as they fill up the interstices, or pores, and give the land a degree of consistence, which adapts it for the purposes of vegetation, and totally exterminates that pernicious weed, the corn marygold, or yellow ox-eye, chrysanthemum segetum, L. which abounds particularly in sandy soils. It has a very different effect on clayey ground; for so far from rendering it more compact which is too much so already, it insinuates itself into the small pores; and, by raising a fermentation, exposes the clay more to the operations of the frost, rain, sun, and air; by which means its too coherent particles are loosened, and it is reduced to a state of pulverisation.

It is, however, a circumstance worthy of remark, that, although the Kentish chalk agrees extremely well with other clayey soils, yet when laid on those lands in Kent, situated near the pits, it by no means answers the expectations of the farmer. This is probably owing to the Kentish clays partaking in some degree of the nature of chalk, which, therefore, has not so good an effect in Kent, as in other parts of England; the quality of the manure being nearly congenial with the soil. It also deserves to be noticed, that chalk, however excellent it may be in itself, when mixed with dung or any other manure, is so far from ameliorating the soil, that crops to be raised from it receive no benefit whatever, and it totally loses its invigorating qualities.

There are two processes by which chalk is obtained for the purpose of manuring land; the first is by uncallowing a piece of ground, and making it convenient for a pit, where the carts may be drawn into it, and filled: this is on a presumption that the chalk lies near the surface, and that the pit is within a small distance of the field on which the manure is to be laid. The other method is to sink pits in the field where the chalk is intended to be laid as a manure, and which is far preferable to that of drawing it in carts as before mentioned. In this case, a number of pits are to be sunk according to the extent of the field. These pits are to be made in the form and circumference of a well, with an apparatus at the top, and a bucket to draw up the chalk. The people who undertake this business, having been brought up to it from their infancy, perform it with great facility, and without any timidity, though attended with much danger. A person is employed at the top to draw up the contents of the pit, shoot the chalk into a barrow, and wheel the same on the land. When the laborer has arrived at the chalk, which takes up a longer or less interval of time according to the depth at which it lies, and has dug some little time therein in the perpendicular form wherein he began the pit, he proceeds to form apertures in different horizontal directions; so that where the chalk is good, and the pit stands firm, large tracts of ground are undermined for this purpose.

Chalk lime may be easily prepared, so as to be fully equal if not superior to stone lime. The reason why this is not generally thought to be the case, probably is, that not being of so close a texture, it is sooner spoiled by the absorption of carbonic acid, when exposed to the atmosphere after it is made. A cask of chalk lime should never therefore be opened till the moment it is to be slaked and the greatest expedition should be used in the slaking, and in the making and applying the mortar to use. In the quiescent air of a room, a pound, avoirdupois, of chalk lime, becomes two ounces and a half heavier in two days; and nearly the whole of this increase of weight consists of the carbonic acid which it has imbibed from the atmosphere. See LIME.

The vast ridges of chalk, in England, are always bordered by parallel ranges of sand or sand-stone, beneath and alternating with which are situated the beds of fullers-earth. Chalk-hills are also singularly characterised by their dryness and their verdure: the most porous sand-stone is scarcely so deficient in springs of water, and yet, except upon almost perpendicular descents, the white surface of the chalk is uniformly covered with fine turf or wood. The chalk-hills in England occupy a greater extent than in any other country, they run in a direction nearly from east to west parallel to each other, and separated by ranges of sand-stone, and low tracts of gravel and clay. The most northern and loftiest range of chalk commences at the promontory of Flamborough head in Yorkshire, and proceeds westward for nearly twenty miles. In the county of Lincoln are some fragments of a ridge near Grantham. Two ridges traverse the midland counties, and reach as far west as the borders of Oxfordshire: these ridges are no where so conspicuous as in the county of Bedford, where they approach near to each other, being only separated by the Woburn and Ampthill range of sand-stone. The country south of the Thames also contains two ridges, the one commencing at the north and south Forelands, passing through the north of Kent, the middle of Surrey, and the north of Hampshire, and including the North Downs of Banstead, Epsom, &c.; the other commencing near Hastings and at the lofty promontory of Beachy-head, passes through Sussex, and the south of Hampshire, into Dorsetshire.

In medicine chalk is reputed to be one of the most useful absorbents, and in this light mainly deserves notice; as the astringent virtues, which some have attributed to it, are utterly unfounded, unless so far as the earth is saturated with acid, in which combination it forms a saline concrete, that is manifestly astringent.

CHALK, BLACK, a name given by painters to a species of earth with which they draw on blue paper, &c. It is found in pieces from two to ten feet long, and from four inches to twenty broad, generally flat, but somewhat rising in the middle, and thinner towards the edges, commonly lying in large quantities together. While in the earth it is moist and flaky: but being dried, it becomes considerably hard and very light; but always breaks in some particular direction; and if attentively examined, when fresh broken, appears of a striated texture. To the touch it is soft and smooth, stains very freely, and by virtue of the smoothness makes very neat marks. It is easily reduced into an impalpable soft powder, without any diminution of its blackness. In this state it mixes easily with oil into a smooth paste; and, being diffused through water, it slowly settles in a black slimy or muddy form; properties which make its use very convenient to the painters, both in oil and water colors. It appears to be an earth quite different from common chalk, and rather of the slaty bituminous kind. In the fire it becomes white, with a reddish cast, and very friable, retaining its flaky structure, and looking much like the white flaky masses which some sorts of pit-coal leave in burning. Neither the chalk nor these ashes are at all affected by acids. The color shops are supplied with this earth from Italy or Germany; though some parts of England afford substances, nearly, if not entirely, of the same quality, and which are found to be equally serviceable for marking, and as black paints.

CHALK, RED, an earth much used by painters and artificers, and common in the color shops. It is properly an indurated clayey ochre; and is dug in Germany, Italy, Spain, and France, but in greatest quantity in Flanders. It is of a fine, even, and firm texture; very heavy and very hard; of a pale red on the outside, but of a deep dusky chocolate color within. It adheres firmly to the tongue, is perfectly insipid to the taste, and makes no effervescence with acids.

Chalk, Silver. See Argentaria.

Chalk, Yellow. See Tripoli.

Chalk-stones, in medicine, signify the concretions of calcareous matter in the hands and feet of people violently afflicted with the gout. Leuwenhoek examined these by the microscope; but his observations and distinctions have led to nothing useful, with regard to the nature or cure of the disease. Dr. Wollaston was the first who demonstrated their true composition to be uric acid combined with ammonia, and thus explained the mysterious pathological relation between gout and gravel. Gouty concretions are soft and friable. They are insoluble in cold, and but slightly in boiling water. An acid being added to this solution seizes the soda, and the uric acid is deposited in small crystals.

CHA'LLENGE, *v. a.* & *n. s.* } Bar. Lat. *callagium, calangium*; French, *chalenger*. A demand, an appeal, a call to fight. The verb is rather more extensive in its signification. To call either to answer for an offence, or to contest for superiority. It also means to accuse, to claim, to object, to demand the fulfilment of a promise or engagement. In the sense of objecting to, it is a term of law. See below.

Cha'llenger, *n. s.* }

The people, anon, had suspect in this thing,
By maner of the cherles *chalenging*,
That it wos by the assent of Appius;
They wisten well that he was lecherous.
Chaucer's Cant. Tales.

You are mine enemy, I make my *challenge*,
You shall not be my judge. *Shakspeare.*

And so much duty as my mother shewed
To you, preferring you before her father;
So much I *challenge*, that I may profess
Due to the Moor, my lord. *Id.*

Had you not been their father, these white flakes
Did *challenge* pity of them. *Id.*

The prince of Wales stepped forth before the king,
And, nephew, *challenged* you to single fight. *Id.*

Whose worth
Stood *challenger* on mount of all the age,
For her perfections. *Id.*

Earnest *challengers* there are of trial, by some public disputation. *Hooker.*

That divine order, whereby the pre-eminence of chiefest acceptation is by the best things worthily *challenged*. *Id.*

Many of them be such losels and scatterlings, as that they cannot easily by any sheriff be gotten, when they are *challenged* for any such fact.
Spenser on Ireland.

For't has been held by many that
As Montaigne playing with his cat,
Complains she thought him but an ass
Much more she would Sir Hudibras;
For that's the name our valiant knight
To all his *challengers* did write.
Butler's Hudibras.

Thus formed for speed, he *challenges* the wind,
And leaves the Scythian arrow far behind.
Dryden.

Death was denounced;
He took the summons, void of fear,
And unconcernedly cast his eyes around,
As if to find and dare the grisly *challenger*. *Id.*

So when a tyger sucks the bullock's blood,
A famish'd lion, issuing from the wood,
Roars loudly fierce, and *challenges* the food. *Id.*

I will now *challenge* you of your promise, to give me certain rules as to the principles of blazonry.
Peacham on Drawing.

I *challenge* any man to make any pretence to power by right of fatherhood, either intelligible or possible.
Locke

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There are two processes by which chalk is obtained for the purpose of manuring land; the first is by uncallowing a piece of ground, and making it convenient for a pit, where the carts may be drawn into it, and filled: this is on a presumption that the chalk lies near the surface, and that the pit is within a small distance of the field on which the manure is to be laid. The other method is to sink pits in the field where the chalk is intended to be laid as a manure, and which is far preferable to that of drawing it in carts as before mentioned. In this case, a number of pits are to be sunk according to the extent of the field. These pits are to be made in the form and circumference of a well, with an apparatus at the top, and a bucket to draw up the chalk. The people who undertake this business, having been brought up to it from their infancy, perform it with great facility, and without any timidity, though attended with much danger. A person is employed at the top to draw up the contents of the pit, shoot the chalk into a barrow, and wheel the same on the land. When the laborer has arrived at the chalk, which takes up a longer or less interval of time according to the depth at which it lies, and has dug some little time therein in the perpendicular form wherein he began the pit, he proceeds to form apertures in different horizontal directions; so that where the chalk is good, and the pit stands firm, large tracts of ground are undermined for this purpose.

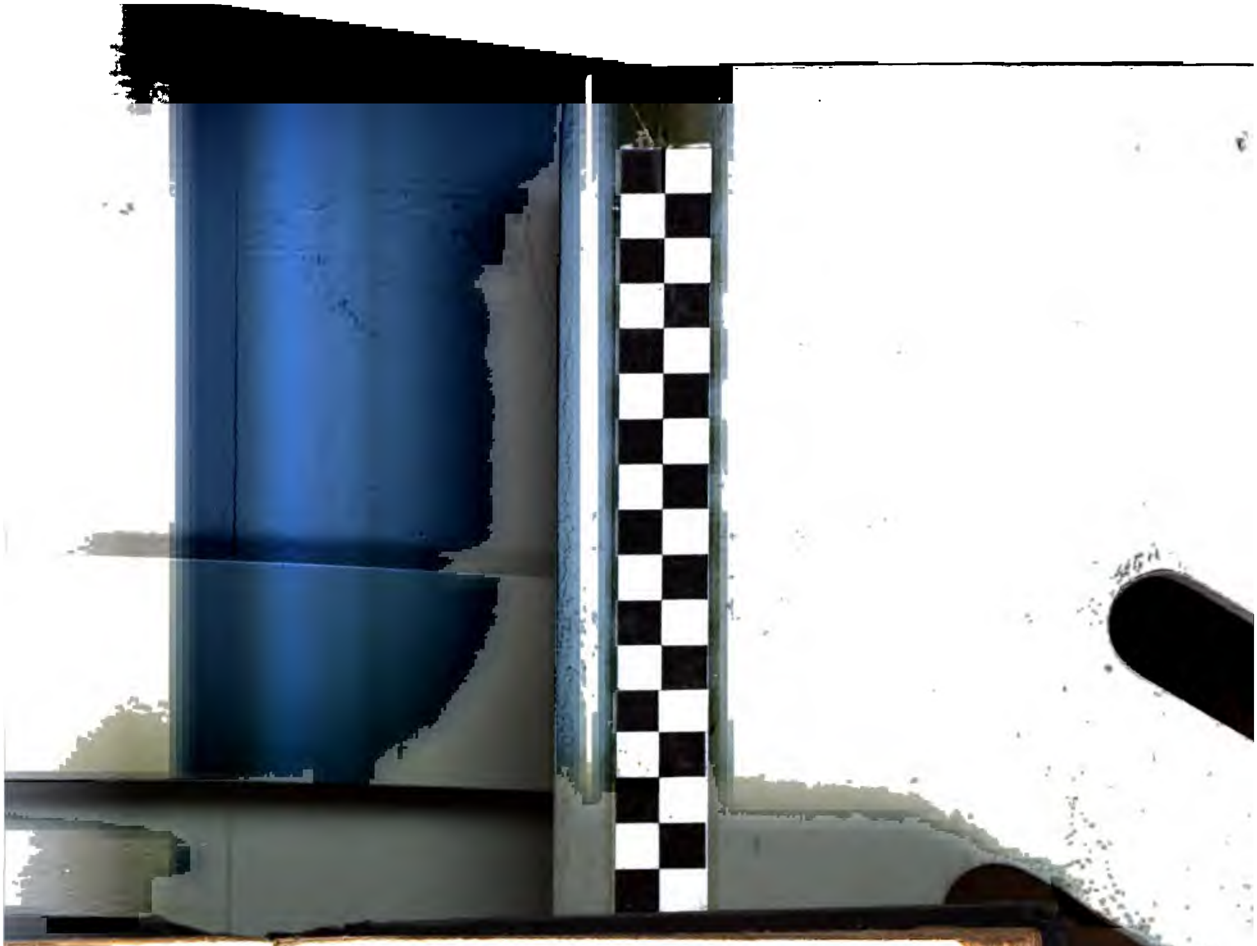
Chalk lime may be easily prepared, so as to be fully equal if not superior to stone lime. The reason why this is not generally thought to be the case, probably is, that not being of so close a texture, it is sooner spoiled by the absorption of carbonic acid, when exposed to the atmosphere after it is made. A cask of chalk lime should never therefore be opened till the moment it is to be slaked and the greatest expedition should be used in the slaking, and in the making and applying the mortar to use. In the quiescent air of a room, a pound, avoirdupois, of chalk lime, becomes two ounces and a half heavier in two days; and nearly the whole of this increase of weight consists of the carbonic acid which it has imbibed from the atmosphere. See Lime.

The vast ridges of chalk, in England, are always bordered by parallel ranges of sand or sand-stone, beneath and alternating with which are situated the beds of fullers-earth. Chalk-hills are also singularly characterised by their dryness and their verdure: the most porous sand-stone is scarcely so deficient in springs of water, and yet, except upon almost perpendicular descents, the white surface of the chalk is uniformly covered with fine turf or wood. The chalk-hills in England occupy a greater extent than in any other country, they run in a direction nearly from east to west parallel to each other, and separated by ranges of sand-stone, and low tracts of gravel and clay. The most northern and loftiest range of chalk commences at the promontory of Flamborough head in Yorkshire, and proceeds westward for nearly twenty miles. In the county of Lincoln are some fragments of a ridge near Grantham. Two ridges traverse the midland counties, and reach as far west as the borders of Oxfordshire: these ridges are no where so conspicuous as in the county of Bedford, where they approach near to each other, being only separated by the Woburn and Ampthill range of sand-stone. The country south of the Thames also contains two ridges, the one commencing at the north and south Forelands, passing through the north of Kent, the middle of Surrey, and the north of Hampshire, and including the North Downs of Banstead, Epsom, &c.; the other commencing near Hastings and at the lofty promontory of Beachy-head, passes through Sussex, and the south of Hampshire, into Dorsetshire.

In medicine chalk is reputed to be one of the most useful absorbents, and in this light mainly deserves notice; as the astringent virtues, which some have attributed to it, are utterly unfounded, unless so far as the earth is saturated with acid, in which combination it forms a saline concrete, that is manifestly astringent.

Chalk, Black, a name given by painters to a species of earth with which they draw on blue paper, &c. It is found in pieces from two to ten feet long, and from four inches to twenty broad, generally flat, but somewhat rising in the middle, and thinner towards the edges, commonly lying in large quantities together. While in the earth it is moist and flaky: but being dried, it becomes considerably hard and very light; but always breaks in some particular direction; and if attentively examined, when fresh broken, appears of a striated texture. To the touch it is soft and smooth, stains very freely, and by virtue of the smoothness makes very neat marks. It is easily reduced into an impalpable soft powder, without any diminution of its blackness. In this state it mixes easily with oil into a smooth paste; and, being diffused through water, it slowly settles in a black slimy or muddy form; properties which make its use very convenient to the painters, both in oil and water colors. It appears to be an earth quite different from common chalk, and rather of the slaty bituminous kind. In the fire it becomes white, with a reddish cast. and very friable, retaining its flaky structure, and looking much like the white flaky masses which some sorts of pit-coal leave in burning. Neither the chalk nor these ashes are at all affected by acids. The color shops are supplied with this earth from Italy or Germany; though some parts of England afford substances, nearly, if not entirely, of the same quality, and which are found to be equally serviceable for marking, and as black paints.

Chalk, Red, an earth much used by painters and artificers, and common in the color shops. It is properly an indurated clayey ochre; and is dug in Germany, Italy, Spain, and France, but in greatest quantity in Flanders. It is of a fine, even, and firm texture; very heavy and very hard; of a pale red on the outside, but of a deep dusky chocolate color within. It adheres firmly to the tongue, is perfectly insipid to the taste, and makes no effervescence with acids.



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CHALLENGES, in criminal cases, may be made either on the part of the king, or on that of the prisoner; to the whole array, or to the separate polls, for the same reasons that they may be in civil causes. For it is here at least as necessary as there, that the sheriff or returning officer be totally indifferent; that, where an alien is indicted, the jury should be de medietate, or half foreigners, if so many are found in the place, which does not indeed hold in treasons, aliens being very improper judges of the breach of allegiance; nor yet in the case of gipseys, under the statute 22 Henry VIII. c. 10; that on every panel there should be a competent number of hundreders; and that the particular jurors should be omni exceptione majores, not liable to any objections whatever. Challenges on any of the foregoing accounts are styled challenges for cause; which may be without stint in both civil and criminal trials. But in criminal cases, or at least in capital ones, there is, in favorem vitæ, allowed to the prisoner an arbitrary and capricious species of challenge to a certain number of jurors, without showing any cause at all; which is called a peremptory challenge: a provision full of that tenderness and humanity to prisoners for which our laws are justly famous. This is grounded on two reasons: 1. As every one must be sensible what sudden impressions and unaccountable prejudices we are apt to conceive upon the bare looks and gestures of another; and how necessary it is, that a prisoner, when put to defend his life, should have a good opinion of his jury, the want of which might totally disconcert him; the law wills not that he should be tried by any one man, against whom he has conceived a prejudice, even without being able to assign a reason for such his dislike. 2. Because upon challenges for cause shown, if the reason assigned prove insufficient to set aside the juror, perhaps the bare questioning his indifference may sometimes provoke a resentment; to prevent all ill consequences from which, the prisoner is still at liberty, if he pleases, peremptorily to set him aside. This privilege of peremptory challenges, granted to the prisoner, is denied to the king by the statute 33 Edw. I. stat. 4, which enacts, that the king shall challenge no jurors without assigning a cause certain, to be tried and approved by the court. However, it is held that the king need not assign his cause of challenge till all the panel is gone through, and unless there cannot be a full jury without the persons so challenged. And then, and not sooner, the king's counsel must show the cause: othewise the juror shall be sworn. The peremptory challenges of the prisoner must, however, have some reasonable boundary; otherwise he might never be tried. This reasonable boundary is settled by the common law to the number of thirty-five; or, one under the number of three full juries. For the law judges, that thirty-five are fully sufficient to allow the most timorous man to challenge through mere caprice; and that he who peremptorily challenges a greater number, or three full juries, has no intention to be tried at all. And therefore it deals with one who peremptorily challenges above thirty-five, and will not retract his challenge, as with one who stands mute, or refuses his trial; by sentencing him to the peine forte et dure in felony, and by attainting him in treason. And so the law stands at this day with regard to treason of any kind. But by statute 22 Hen. VIII. c. 14, which, with regard to felonies, stands unrepealed, no person arraigned for felony can be admitted to make more than twenty peremptory challenges.

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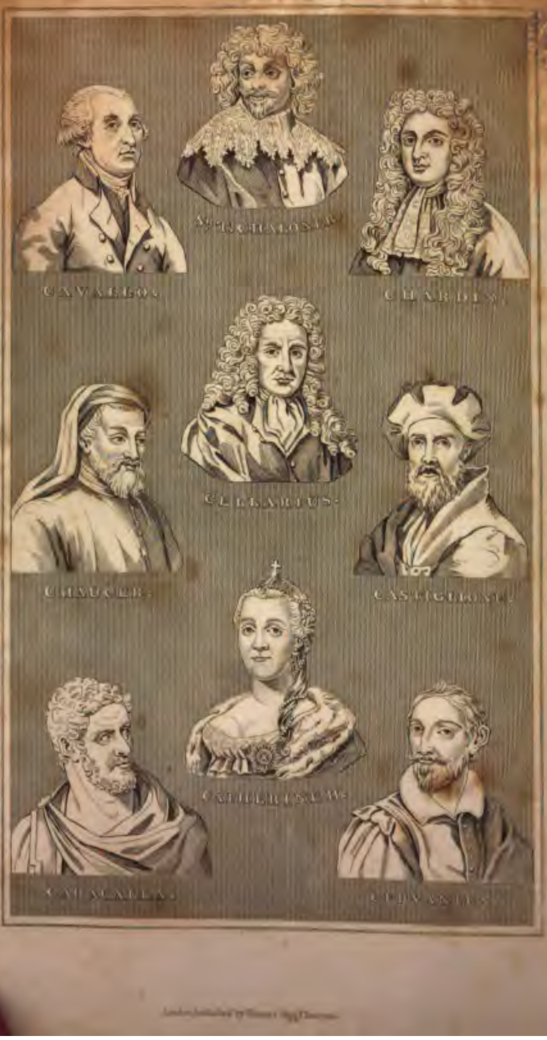
CHALMERS (George,) F. R. S. and F. S. A., a miscellaneous writer, born in Scotland, went in early life to America, but on the breaking out of the war of independence returned to London, and obtained a situation in the office of the board of trade. This he retained to his death in 1825. His works are, Political Annals of the United Colonies, 4to.; Estimate of the Strength of Great Britain, during the present and four preceding Reigns, 8vo.; Opinions on Subjects of Public Law and Commercial Policy, connected with American Independence, 8vo.; Life of Daniel De Foe, 8vo.; Life of Thomas Ruddi-



London, Published by Thomas Tegg, Cheapside.

man, 8vo.; Apology for the Believers in the Shakspeare Papers, 8vo.; Caledonia, or an Account, Historical and Geographical, of North Britain, 4to.; Chronological Account of Commerce and Coinage in Great Britain, 8vo.; Life of Mary, Queen of Scots, 4to. He also edited the works of Sir David Lyndesay, and some other old writers.

CHALONER (Sir Thomas), a statesman, soldier, and poet, descended from an ancient family in Denbigh, in Wales, was born at London about A. D. 1515. Having been educated in both universities, he was introduced to Henry VIII. who sent him abroad in the retinue of Sir Henry Knevet, ambassador to Charles V. whom he attended on his fatal expedition in 1541 to Algiers. Chaloner returned soon after to England, and was appointed first clerk of the council, which office he held during the rest of that reign. On the accession of Edward VI. he became a favorite of the duke of Somerset, whom he attended to Scotland, and was knighted by him, after the battle of Musselburgh, in 1547. The duke's fall put a stop to Sir Thomas's expectations, and involved him in difficulties. During the reign of Mary, being a protestant, he was in great danger; but, having many powerful friends, he escaped. On the accession of queen Elizabeth, he appeared again at court; and was appointed ambassador to the emperor Ferdinand I. being the first ambassador she nominated. His commission was of great importance; and the queen was so well satisfied with his conduct, that, soon after his return, she sent him in the same capacity to Spain. He embarked for Spain in 1561, and returned to London in 1564, in consequence of his own request, expressed in an elegy written in imitation of Ovid. He died in 1565. His poetical works were published in 1579. His chief work was that Of Restoring the English Republic, in ten books, which he wrote while in Spain. This great man, who knew how to transact as well as write upon, the most important affairs of states and kingdoms, could also descend to compose a Dictionary for Children, and to translate from the Latin a book Of the Offices of Servants.

Chaloner (Sir Thomas), the only son of the preceding, was born in 1559. He merits particular notice, not only as a skilful naturalist in an age wherein natural history was very little understood, but as the founder of the alum works in Yorkshire, which have since proved so advantageous to the commerce of this kingdom. Being very young when his father died, lord Burleigh sent him to St. Paul's School, and afterwards to Magdalen College, Oxford, where he discovered extraordinary talents for Latin and English poetry. About 1580 he made the tour of Europe, and returned to England before 1584. About this time he married the daughter of Sir William Fleetwood. In 1591 he was knighted; and, some time after, discovered the alum mines on his estate at Gisborough, in Yorkshire. Towards the end of the queen's reign, Sir Thomas visited Scotland; and returning to England in the retinue of king James I. was immediately appointed governor to prince Henry. He died in 1615. He wrote, 1. Dedication to Lord Burleigh, of his father's poetical works, dated 1579. 2. The Virtue of Nitre, London, 1584, 4to. Sir Thomas, during his residence in Italy, being particularly fond of natural history, had spent some time at Puzzoli, where he was very attentive to the art of producing alum. This attention proved infinitely serviceable to his country, though of no great benefit to himself or his family, his attempt being attended with much difficulty and expense. It was begun about A. D. 1600, but was not brought to any perfection till some time in the reign of Charles I. by the assistance of one Russel a Walloon, and two other workmen, from the alum works at Rochelle. By one of the arbitrary acts of Charles, it was then deemed a mine royal, and granted to Sir Paul Pindar. The long parliament adjudged it a monopoly, and justly restored it to the original proprietors.

CHALONS Sur Marne, the Roman Catalaunum, a large town of Champagne, France, situated on the Marne, of the department of which it is the capital. The river, which is crossed by several bridges, divides it into three parts, viz. the town, properly so called, the island, and the suburb. Here is a fine Gothic cathedral, of the thirteenth century, eleven parish churches, three secularised abbeys, several convents, and a handsome town-house, together with an academy of sciences and belles-lettres, founded in 1750. Woollen manufactures, tanneries, and yarn-spinning, occupy the attention of the greater part of its inhabitants, who amount to about 12,000. But it has a good trade in corn and wine. Twenty-five miles south-east of Rheims, forty south-west of Verdun, and 103 east of Paris.

Chalons Sur Saone, the ancient Cabillonum, a well-built town of France, in Burgundy, on the right bank of the Saone. The number of inhabitants is about 9000, exclusive of the small town of St. Lawrence, on an island, near the opposite bank of the river, which communicates with the town by a stone bridge. Chalons is the see of a bishop, has six parish churches, two abbeys, and eight other religious foundations. The quay runs along the banks of the Saone; it is a solid and beautiful piece of workmanship. The manufactures are inconsiderable. It is 170 miles north of Lyons, and 214 south-east of Paris.

CHALY'BEATE, *adj.* from Lat. *chalybs*, steel. Impregnated with iron or steel; having the qualities of steel.

> The diet ought to strengthen the solids, allowing spices and wine, and the use of *chalybeate* waters.
>
> *Arbuthnot on Diet.*

Chalybeate, a term applied to any mineral water which abounds with iron; such are the Tunbridge, Spa, Cheltenham, &c.

CHALYBES, in ancient geography, a people of the Hither Asia. Their situation is differently assigned; Strabo placing them in Paphlagonia, east of Synope; Apollodius Rhodius and Stephanus, on the east of the Thermodon, in Pontus; called Halizones by Homer. They either gave their name to, or took it from the iron manufactures, their only support.

born at Milton in Westmoreland. His parents were Presbyterians; and his education such as is commonly given to qualify a youth for trade. He was apprenticed to Mr. Senex, the globemaker, a business connected with literature, especially with astronomy and geography. During his residence with this skilful mechanic, he contracted that taste for science which accompanied him through life. Even at this period, he formed the design of his grand work, the Cyclopædia; and some of the first articles of it were written behind the counter. Having conceived the idea of so great an undertaking, he justly concluded that the execution of it would not consist with the avocations of trade; and therefore he quitted Mr. Senex, and took chambers at Gray's Inn, where he chiefly resided during the rest of his life. The first edition, which was the result of many years intense application, appeared in 1728 in two vols. folio. It was published by subscription at four guineas, and the list of subscribers was very respectable. The dedication to the king is dated October 15th, 1727. The reputation that Mr. Chambers acquired by this undertaking, procured him the honor of being elected F.R.S. November 6th, 1729. In less than ten years a second edition became necessary; which accordingly was printed, with corrections and additions, in 1738; and was followed by a third in 1739. Although the Cyclopædia was the grand business of Mr. Chambers' life, and almost the sole foundation of his fame, his attention was not wholly confined to this undertaking. He was concerned in a periodical publication, entitled, The Literary Magazine, which was begun in 1735. In this work he wrote a variety of articles, and particularly a review of Morgan's Moral Philosophy. He was engaged likewise, in conjunction with professor John Martyn, F.R.S., in preparing for the press a translation and abridgment of the Philosophical history and Memoirs of the Royal Academy of Sciences at Paris. This undertaking was comprised in five volumes octavo, which did not appear till 1742, some time after our author's decease, when they were published in the joint names of Messrs Martyn and Chambers. Mr. Chambers also published a translation of the Jesuit's Perspective, from the French; which was printed in quarto, and went through several editions. His close and unremitting attention to study at length impaired his health, and obliged him to make an excursion to the south of France, but without that benefit which had been expected. Returning to England, he died at Canonbury House, Islington, May 15th, 1740, and was buried at Westminster, where an inscription, written by himself, is placed on the north side of the cloisters of the Abbey. After his death, other two editions of his Cyclopædia were published. The proprietors afterwards procured a supplement to be compiled, which extended to two volumes more: and in 1778 began to be published in weekly numbers, an edition of both, improved and incorporated into one alphabet, by Dr. Rees, which was completed in four volumes folio. The doctor, it is well known, afterwards published forty volumes quarto on the same plan. See CYCLOPÆDIA.

CHAMBERS (Sir Robert), an eminent lawyer, born at Newcastle-upon-Tyne, in 1737, where he received his education under Moyses, along with lord Eldon and Sir Willam Scott; and the friendship they there contracted continued till death. He was chosen exhibitioner of Lincoln College, Oxford, in 1754, and afterwards became fellow of University College, where he was again associated with the Scotts and other eminent characters, particularly Sir William Jones. In 1766 he was appointed Vinerian professor of law in the room of Sir William Blackstone; and about the same time he was made principal of New Inn Hall. In 1768 an offer was made him to go out as attorney-general of Jamaica, which he declined; but in 1773 he accepted the place of second judge in the supreme court of judicature at Bengal; and such was the regard which the university entertained for him, that, in case he should think proper to return, they continued to him the professorship three years. In 1778 the honor of knighthood was conferred on him, as a testimony of the royal approbation of his upright conduct. In 1791 Sir Robert succeeded to the office of chief justice on the resignation of Sir Elijah Impey; and in 1797 he was chosen president of the Asiatic Society. He returned to England in 1799, but being of a delicate constitution the change to a northern climate soon affected his health; to preserve which he went to France in autumn, 1802, but died at Paris on the 9th of May following. His remains were brought to England and interred in the Temple. He wrote an elegant epitaph in Latin, inscribed on the monument of his friend, Sir William Jones, at Oxford.

CHAMBERS (Sir William), an eminent architect, was born at Stockholm, of an ancient Scotch family which had resided some years there. When about eighteen years of age he was appointed supercargo to the Swedish East India company, and brought from China the Asiatic style of ornament, which became so fashionable in England at one time, under the royal patronage. Mr. Chambers settled in England, where he gained considerable business as an architect, and became surveyor-general of the Board of Works, fellow of the Royal and Antiquarian Societies, treasurer of the Royal Academy, and knight of the polar star in Sweden. The building of Somerset-house will prove a lasting monument of his skill and taste; but his principal works are his stair-cases, and his designs for interior arrangements. He died in March, 1796. He wrote a treatise on civil architecture, which is considered a valuable work.

CHA'MBLET, *v. n.* From *camelot.* To vary; to variegate. See CAMELOT.

> Some have the veins more varied and *chambleted*; as oak, whereof wainscot is made.
>
> *Bacon's Natural History.*

CHAMBRE (Martin Cureau de la,) physician to Louis XIV. was distinguished by his knowledge of medicine and philosophy. He was born at Mans; and was received into the French Academy in 1625, and afterwards into the Academy of Sciences. His principal works

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CHA'MBREL of a horse. The joint or bending of the upper part of the hinder leg.—*Farrier's Dict.*

CHAME'LEON, *n. s.* χαμαιλεων.

> I can add colours even to the *chameleon*;
> Change shapes with Proteus, for advantage.
> *Shakspeare.*

> One part devours the other, and leaves not so much as a mouthful of that popular air, which the *chameleons* gasp after. *Decay of Piety.*

> The thin *chameleon*, fed with air, receives
> The colour of the thing to which he cleaves.
> *Dryden.*

> As the *chamelion*, which is known
> To have no colours of his own,
> But borrows from his neighbour's hue
> His white or black, his green or blue. *Prior.*

The CHAMELEON has four feet, and on each foot three claws. Its tail is long; with this, as well as with its feet, it fastens itself to the branches of trees. Its tail is flat, its nose long, ending in an obtuse point; its back is sharp, its skin plaited, and jagged like a saw from the neck to the last joint of the tail, and upon its head it has something like a comb; like a fish, it has no neck. Some have asserted, that it lives only upon air; but it has been observed to feed on flies, caught with its tongue, which is about ten inches long, and three thick; made of white flesh, round, but flat at the end; or hollow and open, resembling an elephant's trunk. It also shrinks, and grows longer. This animal is said to assume the color of those things to which it is applied; but our modern observers assure us, that its natural color, when at rest and in the shade, is a bluish gray; though some are yellow, and others green, but both of a smaller kind. When it is exposed to the sun, the gray changes into a darker gray, inclining to a dun color; and its parts, which have least of the light upon them, are changed into spots of different colors. The grain of its skin, when the light does not shine upon it, is like cloth mixed with many colors. Sometimes, when it is handled, it seems speckled with dark spots, inclining to green. If it be put upon a black hat, it appears to be of a violet color: and sometimes, if it be wrapped up in linen, it is white; but it changes color only in some parts of the body.—*Calmet.*

CHAMELEON, in astronomy, a constellation of the southern hemisphere, near the south pole, invisible in our latitude. See ASTRONOMY.

CHAMELEON, in zoology. See LACERTA.

To CHA'MFER, *v. a.* Fr. *chambrer.* To channel; to make furrows or gutters upon a column.

CHA'MFER, *n. s.* } From *to chamfer.* A
CHA'MFRET, *n. s.* } small furrow or gutter on a column.

CHAMFERING, in architecture, a phrase used for cutting anything aslope on the under side.

CHAMIER (Daniel), an eminent protestant divine, born in Dauphine. He was many years preacher at Montelimart; from whence he went in 1612 to Montauban, to be professor of divinity, and was killed by a cannon ball during the siege in 1621. The most considerable of his works is his Panstratia Catholica, or Wars of the Lord, in four volumes folio; in which he treats very learnedly of the controversies between the Protestants and Roman Catholics.

CHA'MLET, *n. s.* See CAMELOT. Stuff made originally of camel's hair.

> To make a *chamlet*, draw five lines, waved overthwart, if your diapering consists of a double line.
> *Peacham on Drawing.*

CHA'MOIS *n. s.* Fr. *chamois.* An animal of the goat kind, whose skin is made into soft leather, called among us shammy.

> These are the beasts which you shall eat; the ox, the sheep, and wild ox, and the *chamois.*
> *Deuteronomy.*

CHAMOIS, in zoology. See CAPRA.

CHA'MOMILE, *n. s.* χαμαιμῆλον. An odoriferous plant.

> Cool violets, and orpine growing still,
> Embathed balm, and cheerful galingale,
> Fresh costmary, and breathful *chamomile*,
> Dull poppy, and drink quickening setuale.
> *Spenser.*

> For though the *chamomile*, the more it is trodden on the faster it grows; yet youth, the more it is wasted, the sooner it wears. *Shakspeare.*
> Posset drink with *chamomile* flowers.
> *Floyer on the Humours.*

CHAMOS, or CHEMOSH, the idol of the Moabites. The name comes from a root which, in Arabic, signifies to make haste; for which reason many believe Chamos to be the sun, whose precipitate course might well procure it the name of swift or speedy. Others have confounded chamos with the god Hammon, adored not only in Libya and Egypt, but also in Arabia, Ethiopia, and the Indies. Macrobius shows that Hammon was the sun; and the horns, with which he was represented, denoted his rays. Calmet is of opinion, that the god Hamonus, and Apollo Chomeus, mentioned by Strabo and Ammianus Marcellinus, was the very same as Chamos or the sun. These deities were worshipped in many of the eastern provinces. Some who go upon the resemblance of the Hebrew term chamos, to that of the Greek κωμος, have believed chamos to signify Bacchus the god of drunkenness. St. Jerome, and with him most other interpreters, take Chamos and Peor for the same deity. But if Baal-Peor were the same as Tammuz or Adonis, Chamos must be the god of the sun.

CHAMOUNI, an elevated valley of the Alps, situated at the foot of Mont Blanc. See ALPS and BLANC.

CHAMP, *v. a.* } Fr. *champayer.* To bite
CHOMP, *v. n.* } with the frequent action of the teeth; to devour violently and voraciously. To perform frequently the action of biting, as a horse bites the bit; mashing with the teeth.

> They began to repent of that they had done, and irefully to *champ* upon the bit they had taken into their mouths. *Hooker.*

Coffee and opium are taken down, tobacco but in smoke, and betel is but *champed* in the mouth with a little lime. *Bacon.*

Muttering and *champing*, as though his end had troubled him, he gave occasion to Musidoris, to come near him. *Sidney.*

The fiend reply'd not, overcome with rage;
But, like a proud steed reined, went haughty on,
Champing his iron curb. *Milton's Paradise Lost.*

CHAMPAGNE, a ci-devant province of France, about 162 miles long, and 112 broad. It was bounded on the north by Hainault and Luxemburg, on the east by Lorraine and Franche Comté, on the south by Burgundy, and on the west by the Isle of France and Soissonnois. Its principal rivers are the Meuse, Seine, Marne, Aube, and Aine. Its chief trade consists in excellent wine, all sorts of corn, linen cloth, woollen stuffs, cattle, and sheep. It was divided into the higher and lower, and Troyes was the capital. Its sub-divisions were Champagne Proper, Rhemois, Rethelois, Pertois, Vallage, Bassigni, Senonois, and Brie Champenoise. It now forms the departments of Ardennes, Aube, Marne, and Upper Marne.

Champagne Proper, one of the eight ci-devant sub-divisions of Champagne, comprehended the towns of Troyes, Chalons, St. Menehould, Epernay, and Vertus.

CHA'MPAIGN, *n. s.* Fr. *champaigne*; Ital. *campagna*, from Latin, *campus*. A flat open country.

In the abuses of the customs, meseems, you have a fair *champaign* laid open to you, in which you may at large stretch out your discourse.
Spenser's State of Ireland.

Of all these bounds,
With shadowy forests and with *champaigns'* rich'd,
We make thee lady. *Shakspeare.*

From his side two rivers flowed,
The one winding, the other straight, and left between
Fair *champaign*, with less rivers intervened. *Milton.*

CHAMPAIN, or Point Champian, in heraldry, a mark of dishonor in the coat of arms of him who kills a prisoner of war, after he has cried quarter.

CHAMP de Mars, French, i. e. the field of Mars, an extensive field in Paris, which, in 1790, was fitted up in the form of an amphitheatre, capable of holding nearly a million of people, for the purpose of celebrating the anniversary of the revolution, July 14th, 1789.

CHAMPANEER, a town and district of the province of Gujerat, Hindostan, situated between the twenty-second and twenty-third degrees of northern latitude. It is bounded on the north by Godra, on the east by the Mahratta territories of Holkar, on the south by the Nerbudda river, and on the west by Baroach; it is subject to the Mahrattas, part of it belonging to Scindeah, the remainder to the Guicowar. This territory in 1803 was conquered by the British, but at the peace the forts once belonging to Scindeah were restored; and the Guicowar became one of our allies.

Champaneer, the town, was formerly the capital of Gujerat, and has a citadel on the top of a lofty mountain. The great natural and artificial strength of the place, the ruins of Hindoo temples, &c. indicate its past importance, but the present houses are mean huts.

CHA'MPERTORS, *n. s.* From *champerty*; in law. Such as move suits, or cause them to be moved, either by their own or others procurement, and pursue, at their proper costs, to have part of the land in contest, or part of the gains. —*Cowell.*

CHA'MPERTY, *n. s.* Fr. *champart*; in law. A maintenance of any man in his suit, while depending, upon condition to have part of the thing when it is recovered. It is used in Chaucer to signify share of land; partnership in power. —*Id.*

Thus may ye seen, that wisdom ne richesse,
Beaute ne sleighte, strengthe ne hardinesse,
Ne may with Venus holden *champarte*,
For as hire liste the world may she gie,
Chaucer's Canterbury Tales.

Champerty, is a bargain with the plaintiff or defendant, campum partire, to divide the land, or other matters sued for between them, if they prevail at law; whereupon the champertor is to carry on the party's suit at his own expense. Champert, in the ci-devant French law, signified a similar division of profits, being a part of the crop annually due to the landlord. In our sense of the word, it signifies the purchasing of a suit, or right of suing; a practice so much abhorred by our law, that it is one main reason why a chose in action, or thing of which one hath the right but not the possession, is not assignable in common law; because no man should purchase any pretence to sue in another's right. These pests of society were severely animadverted on by the Roman law; and were punished by the forfeiture of a third part of their goods and perpetual infamy. And it is enacted by statute 32 Henry VIII. c. 9, that no one shall sell or purchase any pretended right or title to land, unless the vender hath received the profits thereof for one whole year before such grant, or hath been in actual possession of the land, or of the reversion or remainder; on pain that both purchaser and vender shall each forfeit the value of such land to the king and the prosecutor.

CHAMPI'GNON, *n. s.* Fr. *champignon*; a kind of mushroom.

It has the resemblance of a large *champignon* before it is opened, branching out into a large round knob.
Woodward.

CHA'MPION, *n. s.* & *v. a.* Fr. *champion*; Ital. *campione*; Goth. *kiampur*; Teut. *kaempe*, Sax. *cempa*. A warrior; one who undertakes a cause in single combat; a man bold in contest. To champion is to espouse a cause; to undertake its defence; to challenge to the combat, of whatever nature the combat may be.

There was ne none with Gamelyn,
That wolde wrestle more,
For he handled the *champion*
So wonderously sore. *Chaucer's Canterbury Tales.*

The *champion* stout
Eftsoones dismounted from his courser brave,
And to the dwarfe awhile his needless spere he gave.
Spenser.

A stouter *champion* never handled sword.
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Shakspeare.

The seed of Banquo kings!
Rather than so, come, Fate, into the list,
And *champion* me to the utterance. *Shakspeare.*

In many armies the matter should be tried by duel between two *champions*. *Bacon.*

O light of Trojans, and support of Troy,
Thy father's *champion*, and thy country's joy!
Dryden.

This makes you incapable of conviction; and they applaud themselves as zealous *champions* for truth, when indeed they are contending for errour. *Locke.*

Will not our own and fellow-nations sneer,
To view these *champions* cheated of their fame,
By foes in fight o'erthrown, yet victors here,
Where Scorn her finger points through many a coming year. *Byron. Childe Harold.*

Champion, in the ancient sense of the word, was a person who fought instead of those that, by custom, were obliged to accept the duel, but had a just excuse for dispensing with it, as being too old or infirm, being ecclesiastics, or the like. See Battel.

Champion of the King, campio regis, an ancient officer, who, at the coronation of our kings, when the king is at dinner, rides armed cap-a-pee, into Westminster Hall, and makes proclamation and challenge, in defence of the king's right to the crown. See Coronation.

CHAMPLAIN, a lake of the United States of North America, situated between New York and Vermont, formerly part of the dividing line between these states.

CHANCE, *n. s.*, *v. n.*, & *adj.*
Cha'nceful,
Cha'nce-medley, *n. s.*
Cha'nceable, *adj.*
} Fr. *chance*; from Lat. *casus*, *cadentia*. An event, accident, hazard; anything fortuitous; luck. Fortune or misfortune; whatever is accidental or casual; applied to persons and kings. The verb is used in all these senses. Chance-medley is a term in law.

Myself would offer you t' accompany
In this adventurous *chanceful* jeopardy. *Spenser.*

The trial thereof was cut off by the *chanceable* coming thither of the king of Iberia. *Sidney.*

Now we'll together, and the *chance* of goodness
Be like our warranted quarrel! *Shakspeare.*

Think what a *chance* thou *chancest* on; but think;—
Thou hast thy mistress still. *Id.*

These things are commonly not observed, but left to take their *chance*. *Bacon's Essays.*

A *chance*, but *chance* may lead, where I may meet
Some wandering spirit of heaven, by fountain side,
Or in thick shade retired. *Milton's Paradise Lost.*

If such an one should have the ill hap, at any time, to strike a man dead with a smart saying, it ought, in all reason and conscience, to be judged but a *chance-medley*. *South.*

Chance is but a mere name, and really nothing in itself; a conception of our minds, and only a compendious way of speaking, whereby we would express, that such effects as are commonly attributed to *chance*, were verily produced by their true and proper causes, but without their design to produce them. *Bentley.*

Now should they part, malicious tongues would say,
They met like *chance* companions on the way.
Dryden.

All nature is but art, unknown to thee;
All *chance* direction, which thou can'st not see.
Pope.

Of *chance* or change O let not man complain,
Else shall he never, never cease to wail. *Beattie.*

Suffering, I suffer not—sincerely love,
Yet feel no touch of that enlivening flame;
As *chance* inclines me, unconcerned I move,
All times, and all events, to me the same. *Cowper.*

Chances, Doctrine of, that branch of analysis which investigates the probability of given events taking place, from an examination of the circumstances under which they can happen; a science totally unknown to the ancients.

About the year 1654, M. Nieu, a friend of the celebrated Pascal, though himself unacquainted with mathematics, proposed to the philosopher the following questions. 1. Two gamesters wanting each a certain number of points in a game, agree to desist from playing; how ought the money to be divided between them? 2. In how many throws may a person undertake to throw a certain number of points with two dice? The problems occasioned a correspondence between Pascal, Roberval, Fermat, and other celebrated mathematicians of that day. Their ingenuity was exerted in their solution, and the discussion which they occasioned led inevitably to the determination of the principles on which the science rests.

Pascal discovered the solution of both these problems, but they were not published until after his death, in a work entitled Triangle Arithmetique. Huygens answered the second of these problems in the year 1657, and published his solution in a small work entitled Ratiocinia de Ludo Aleæ; it is given by Schooten, at the end of his work Exercitationes Geometricæ. Huygens here proposed five problems on chances for solution, as a sort of challenge to mathematicians: the novelty of the subject and the celebrity of the proposer attracted great attention; and many papers were now published on various branches of this subject, in the transactions of different learned societies.

An application of this theory, of the greatest importance and utility, was soon afterwards made by a distinguished philosopher. Dr. Halley investigated the subject of life-annuities on the theory of chances, and gave, in the 196th number of the Philosophical Transactions, a table of the probabilities of life for every five years, from one year to seventy. The same application was made by Hudde; and the celebrated Craig, a Scotch mathematician, applied it to the estimation of moral evidence.

In 1685 James Bernouilli proposed, in the Journal des Sçavans de France, two problems relating to the doctrine of chances: and, as they remained unanswered, he himself gave their solution five years afterwards, in the Leipsic Acts. He afterwards undertook a work De arte Conjectandi, in which the subject is treated more at length: but Bernouilli died before he completed it. It was published in 1713, and was translated by the late baron Maseres, and received from him copious notes and commentaries.

Subsequently appeared Montmort's Essai d'Analyse sur le jeux de Hazard, and in 1713 a second edition of this work was published, much enlarged and improved, and containing some letters which had passed between him and John and Nicholas Bernouilli on this subject. He here mentioned two works, which appeared in the interval between the first and second edition of his work, the one a Latin thesis of N. Bernouilli, the other the production of De Moivre, and entitled De Mensurâ Sortis, first published in the Philosophical Transactions for 1710. This paper contained some reflections on the analysis of Montmort, which elicited a reply from the latter in his second edition; this was answered by De Moivre in the preface to his Doctrine of Chances, published in 1718, republished in 1738, and again 1750. The two latter editions of this work may be considered as containing a complete exposition of the science of chances. After the publication of the second edition of De Moivre's work, the doctrine of chances became extremely popular, and many works have since been published on the subject. The most esteemed of these are Simpson On the Nature and Laws of Chance, in 1740. Clark's Law of Chance, 1748. In 1781 a work was published by the celebrated Condorcet, on this subject, besides occasional essays in the works of various other authors, as D'Alembert's Opuscula, Dodson's Mathematical Repository, vol. ii. Price, Philosophical Transactions, 1762, Waring, Philosophical Transactions, 1791. See also Montucla, Histoire des Mathematiques, tom iii. p. 380.

Laws of Chances. The circumstances and limitations under which events may happen, are so various, that it is impossible to reduce the method of proceeding in each case to any general method: in this then, as in some of the higher branches of analysis, much must be left to the judgment of the analyst; and no subject requires more his care and attention.

Def. 1. The probability of an event is the ratio of the number of chances in favor of its happening, to the number of all the chances both in favor of its happening and against it.

Def. 2. The expectation of an event is the present value of any sum or thing which depends, either on the happening or failing of such an event.

Def. 3. Events are independent, when the happening or failing of any one of them, neither increases nor lessens the probability of the rest.

Def. 4. Two events are contrary, when one of them must, and both together cannot happen.

Prop. 1. If an event may take place in n different ways, and each of these be equally likely to happen, the probability that it will take place in a specified way, is properly represented by $\frac{1}{n}$, certainty being represented by unity; or, which is the same thing, if the value of certainty be unity, the value of the expectation that the event will happen in a specified way is $\frac{1}{n}$.

For the sum of all the probabilities is certainty or unity, because the event must happen in some one of the ways, and the probabilities are equal, therefore, each of them is $\frac{1}{n}$. And if the certainty be a, the value of the expectation will be $\frac{a}{n}$.

We gladly avail ourselves of the following illustration of this interesting subject, from Mr. W. Upcott's collection of original letters. It forms part of Mr. Secretary Pepys' correspondence, and contains the subject of a very curious question with its solution, by Sir Isaac (then Mr.) Newton.

A hath six dice in a box, with which he is to fling at least one six, for a wager laid with R.

B hath twelve dice in another box, with which he is to fling at least two sixes, for a wager laid with S.

C hath eighteen dice in another box, with which he is to fling at least three sixes, for a wager laid with T.

The stakes of R, S, and T, are equal; what ought A, B, and C, to stake, that the parties may play upon equal advantage?

To compute this, I set down the following progressions of numbers:

Progr. 1.	1	2	3	4	5	6	the number of the dice.
— 2.	0	1	3	6	10	15	
— 3.	6	36	216	1296	7776	46656	the number of all the chances upon them.
— 4.	5	25	125	625	3125	15625	the number of chances without sixes.
— 5.	1	5	25	125	625	3125	
— 6.	1	10	75	500	3125	18750	chances for one six, and no more.
— 7.		1	5	25	125	625	
— 8.		1	15	150	1250	9375	chances for two sixes, and no more.

The progressions in this table are thus found: the first progression, which expresses the number of the dice, is an arithmetical one: viz. 1, 2, 3, 4, 5, &c. the second is found, by adding to every term, the term of the progression above it, viz. $0 + 1 = 1$, $1 + 2 = 3$, $3 + 3 = 6$, $6 + 4 = 10$, $10 + 5 = 15$, &c. the third progression, which expresses the number of all the chances upon the dice, is found by multiplying the number 6 into itself continually; and the fourth, fifth, and seventh, are found by multiplying the number 5 into itself continually; the sixth is found by multiplying the terms of the first and fifth, viz. $1 \times 1 = 1$, $2 \times 5 = 10$, $3 \times 25 = 75$, $4 \times 125 = 500$, &c. and the eighth is found by multiplying the terms of the second and seventh, viz. $1 \times 1 = 1$, $3 \times 5 = 15$, $6 \times 25 = 150$, $10 \times 125 = 1250$, &c. and by these rules the progressions may be continued on to as many dice as you please.

Now, since A plays with six dice, to know what he and R ought to stake, I consult the numbers in the column under six, and there, from 46,656, the number of all the chances upon those dice expressed in the third progression, I subduct 15,625, the number of all the chances, without a six expressed in the fourth; and the remainder, 31,031, is the number of all the chances, with one six, or above: therefore the stake of A must be to the stake of R, upon equal advantage, as 31,031 to 15,625, or [illegible] to 1; for their stakes must be as their expectations, that is, as the number of chances which make for them. In like manner, if you would know what B and S ought to stake upon twelve dice, produce the progressions to the column of twelve dice, and the sum of the numbers in the fourth and sixth progressions, viz. 244,140,625 + 585,937,500 = 830,078,125, will be the number of chances for S; and this number, subducted from the number of all the chances in the third progression, viz. 2,176,782,336, will leave 1,346,704,211, the number of chances for B; therefore the stake of B would be to the stake of S, as 1,346,704,211 to 830,078,125, or [illegible] to 1. And so, by producing the progressions to the number of eighteen dice, and taking the sum of the numbers in the fourth, sixth, and eight progressions, for the number of the chances for T, and the difference between this number, and that in the third column, for the number of the chances for C, you will have the proportion of their stakes upon equal advantage. And thence it will appear, that when the stakes of R, S, and T, are units (suppose one pound or one guinea), and by consequence equal, the stake of A must be greater than that of B, and that of B greater than that of C, and therefore A has the greatest expectation. The question might have been thus stated, and answered in fewer words: if Peter is to have but one throw for a stake of £1000, and has his choice of throwing either one six at least upon six dice, or two at least upon twelve, or three at least upon eighteen, which throw ought he to choose; and of what value is his chance or expectation upon every throw, were he to sell it? Answer: upon six dice there are 46,656 chances, whereof 31,031 are for him; upon twelve, there are 2,176,782,336 chances, whereof 1,346,704,211 are for him: therefore his chance, or expectation, is worth the [illegible]th part of £1000, in the first case, and the [illegible]th part of £1000, in the second; that is, £665 0*s*. 2*d*. in the first case, and £618 13*s*. 4*d*. in the second. In the third case, the value will be found still less.

CHA'NCEL, *n. s.* From Lat. *cancelli*, lattices, with which the chancel was enclosed. The eastern part of the church, in which the altar is placed.

Whether it be allowable or no, that the minister should say service in the *chancel*. *Hooker.*

The *chancel* of this church is vaulted with a single stone, of four feet in thickness, and an hundred and fourteen in circumference. *Addison on Italy.*

CHANCEL, is that part of the choir of a church, between the altar and the rail that incloses it, where the minister is placed at the celebration of the communion. The right of a seat and a sepulchre in the chancels is one of the privileges of founders.

CHA'NCELLOR, *n. s.* Lat. *cancellarius*; Fr. *chancellier*; from cancellare literas, vel scriptum lineâ per medium ductâ damnare; and seemeth of itself likewise to be derived â cancellis, which signify all one with κιγκλι δὲς, a lattice; that is, a thing made of wood or iron bars, laid crossways one over another, so that a man may see through them in and out. It may be thought that judgment seats were compassed in with bars, to defend the judges and other officers from the press of the multitude, and yet not to hinder any man's view.

Vice-*chancellors* whose knowledge is but small,
And *chancellors* who nothing know at all;
Ill-brooked the generous spirit, in those days,
When learning was the certain road to praise,
When nobles, with a love of science blessed,
Approved in others what themselves possessed.
Churchill.

Turn out, you rogue! how like a beast you lie,
Go, buckle to the law. Is this an hour
To stretch your limbs? you'll ne'er be *chancellor*.
Dryden, jun.

Aristides was a person of the strictest justice, and best acquainted with the laws, as well as forms, of their government; so that he was, in a manner, *chancellor* of Athens. *Swift.*

CHANCELLOR, in the Roman law, was at first only a chief notary under the emperors: and was called cancellarius, because he sat behind a lattice, to avoid being crowded by the people: though some derive the word from cancellare, to cancel. See CHANCERY. This officer was afterwards invested with a general superintendency over the rest of the officers of the prince. From the Roman empire it passed to the Roman church, ever emulous of imperial state: and hence every bishop has to this day his chancellor. See below. When the modern kingdoms of Europe were established upon the ruins of the empire, almost every state preserved its chancellor, with different jurisdictions and dignities, according to their constitutions. But in all of them he seems to have had the supervision of charters, letters, and such other public instruments of the crown as were authenticated in the most solemn manner: and, therefore, when the seals came in use, he had always the custody of the king's great seal.

CHANCELLOR, LORD HIGH OF GREAT BRITAIN, OR LORD KEEPER OF THE GREAT SEAL is the highest honor of the long robe, being created by the mere delivery of the king's great seal into his custody; whereby he becomes, without writ or patent, an officer of the greatest weight and power of any subsisting in the kingdom. He is a privy counsellor by his office; and, according to lord chancellor Ellesmere, prolocutor of the house of lords by prescription. To him belongs the appointment of all the justices of peace throughout the kingdom. Being in former times commonly an ecclesiastic, for none else were then capable of an office so conversant in writing, and presiding over the royal chapel, he became keeper of the king's conscience; visitor in right of the king, of all hospitals and colleges of the king's foundation; and patron of all the king's livings under £20 per annum, in the king's book. He is the general guardian of all infants, ideots, and lunatics; and has the superintendence of all charitable institutions in the kingdom—over and above the extensive jurisdiction which he exercises in his judicial capacity in the court of chancery. He takes precedence of every temporal lord, except the royal family, and of all others except the archbishop of Canterbury. It is declared, by stat. 25, Edward III. treason to slay the Chancellor in his place, and doing his office. In his judicial capacity, all the other officers of the court of chancery are his assistants, viz. the vice-chancellor, the master of the rolls, the masters in chancery, &c.

The *Master of the Rolls* in England hath judicial power, and may sit for the chancellor; but he has certain causes assigned him to hear and decree. By his office he is chief of the masters in chancery, and chief clerk of the petty bag office. The master of the rolls in Ireland has a similar authority.

The office of *Vice Chancellor* was created by stat. 53, George III. c. 24, by which the crown is empowered to appoint by letters patent, some barrister of fifteen years standing, to be an additional judge and assistant to the lord chancellor, lord keeper, or lords commissioners of the great seal of the united kingdom, in the discharge of their respective offices, to be called *Vice Chancellor of England*, to hold such office during his good behaviour. He is empowered to hear and determine all causes depending in the court of chancery in England, either as a court of law or equity, or incident to any ministerial office of the said court, or submitted to such court or to the lord chancellor, &c. by any act of parliament, as the chancellor, &c. shall direct; and all decrees, orders, &c. made by the vice-chancellor shall be valid, as acts of the court, but subject to be reversed or altered by the lord chancellor, &c. and no such decree, &c. shall be enrolled till signed by the chancellor, &c. It is expressly provided that the vice-chancellor shall not have power to reverse or alter any decree, &c. made by the chancellor, &c. unless authorised by the chancellor, &c. so to do; nor to reverse any decree or order of the master of the rolls. He shall sit for the chancellor, &c. when required, and while the chancellor is also sitting, and have a separate court, and shall rank next to the master of the rolls, and have a secretary, train-bearer, usher, &c. He may be removed by address of both houses. His salary is £5000 per annum, to be paid out of the interest of unclaimed suitors' money. This office, although it has been ably discharged, yet, in allowing an appeal to the chancellor, it has but little relieved the delays of the court.

The twelve Masters in Chancery, the six clerks, the cursitors, register, master of the subpœna office, &c. are other officers of the chancellor's court, whose duties we need not particularise.

There is also a lord high chancellor of Ireland; but the lord chancellor of Great Britain, holds the great seal of the united kingdom. See 53 George III. c. 24. The former office of the lord chancellor of Scotland is now filled by a lord keeper of the great seal, with a salary of £3000 a-year.

The CHANCELLOR OF AN UNIVERSITY seals the diplomas, or letters of degrees, provision, &c. given in the university, either personally or by his vice-chancellor. He also holds what is called the chancellor's court. See CAMBRIDGE and OXFORD.

CHANCELLOR OF A DIOCESE; or, of a bishop, a person appointed to hold the bishop's courts, and to assist him in matters of ecclesiastical law. This officer, as well as all other ecclesiastical ones, if lay or married, must be a doctor of the civil law in some university.

CHANCELLOR OF THE DUCHY of LANCASTER, is an officer before whom, or his deputy, the court of the duchy chamber of Lancaster is held; being a special jurisdiction concerning all manner of equity relating to lands holden of the king in right of the duchy of Lancaster. See LANCASTER, DUCHY OF.

CHANCELLOR OF THE EXCHEQUER, is a great officer of the crown, who, it is thought, was originally appointed for the qualifying extremities in the Exchequer: he sometimes sits in court, and in the Exchequer Chamber; and, with the judges of the court, orders things to the king's best benefit. He is mentioned in statute 25, H. 8. c. 16; and has by the statute 33 H. c. 39, power with others, to compound for the forfeitures upon penal statutes, bonds and recognisances, entered into to the king: he has also great authority in the management of the royal revenue, &c. which seems of late to be his chief business, being commonly the first commissioner of the treasury.

CHANCELLOR (Richard), a brave English navigator, in the sixteenth century. He was appointed commander of one of the vessels sent out under Sir Hugh Willoughby, to discover a north-west passage to China, in 1553. Sebastian Cabot, who projected this voyage, and who was then in great favor with Edward VI. obtained letters of recommendation, in Latin, Greek, and other languages, to the sovereigns in the north-east parts of the world; but Sir Hugh Willoughby was parted from his company, and perished on the coast of Lapland, where he had stopped to winter. Captain Chancellor was, however, more fortunate, and having discovered Russia, was introduced to the grand duke, John Basilovitz, by whom he was graciously received, and obtained permission for the English to trade in his dominions. When he returned to England king Edward was dead, but queen Mary was not insensible of the advantages held out by the discovery of enlarging the national commerce, and a company of adventurers was incorporated, who sent captain Chancellor again to Russia. He was returning to England, accompanied by a Russian ambassador and suite, but was unfortunately wrecked on the coast of Norway, where he perished, after exerting himself in the bravest manner to save the Russians, who arrived in London in 1557.

CHA'NCELLORSHIP, *n. s.* The office of chancellor.

> The Sunday after More gave up his *chancellorship* of England, he came himself to his wife's pew, and used the usual words of his gentleman-usher, Madam, my lord is gone. *Camden.*

CHANCE-MEDLEY, in law, is defined a case where one is doing a lawful act, and a person is killed by chance thereby; for if the act be unlawful, it is felony. If a person cast, not intending harm, a stone, which happens to hit one whereof he dies; or shoots an arrow in an highway, and another that passeth by is killed therewith; or if a workman, in throwing down rubbish from a house after warning to take care,

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and after trial it is to be remanded into the chancery, and there judgment given: though if there be a demurrer in law, it shall be argued in this court. In this court is also kept the officina justitiæ; out of which all original writs that pass under the great seal, all commissions of charitable uses, sewers, bankruptcy, idiocy, lunacy, and the like, do issue; and for which it is always open to the subject, who may there at any time demand and have, ex debito justitiæ, any writ that his occasions may call for. These writs, relating to the business of the subject, and the returns of them, were, according to the simplicity of ancient times, originally kept in hanaperia, in a hamper, and the others (relating to such matters wherein the crown is mediately or immediately concerned) were preserved in a little sack or bag, in parva bagga: and hence arose the distinction of the hanaper office, and the petty-bag office, which both belong to the common law court in chancery.

The proceedings in chancery, are, first to file the bill of complaint, signed by some counsel setting forth the fraud or injury done, or wrong sustained, and praying relief: after which process of subpœna issues, to compel the defendant to appear; when he puts in his answer to the bill of complaint, if there be no cause for the plea to the jurisdiction of the court, in disability of the person, or in bar, &c. Then the plaintiff brings his replication, unless he files exceptions against the answer as insufficient, referring it to a master to report whether it be sufficient or not; to which report exceptions may also be made. Suits being sometimes imperfect in their frame, or becoming so by accident before their end has been obtained; or the interests in the property in litigation being often changed, pending the suit; to supply the defects arising from any such circumstances, new suits may become necessary, to add to, or continue, or obtain the benefit of, the original suit. A litigation commenced by one party, sometimes renders necessary a litigation by another party, to operate as a defence, or to obtain a full decision on the rights of all parties. Bills filed for this purpose are termed cross bills. Where the court has given judgment on a suit, it will in some cases permit that judgment to be controverted, suspended, or avoided by a second suit; and sometimes a second suit becomes necessary to carry into execution a judgment of the court. Suits instituted for any of these purposes are also commenced by bill; and hence arises a variety of distinctions of the kinds of bills necessary to answer the several purposes; as bills of review which among other causes may be brought, where new matter is discovered, in time, after the decree made, bills of revivor, &c. and on all the different kinds of bills there may be the same pleadings as on a bill used for instituting an original suit. It frequently happens, that pending a suit, the parties discover some error or defect in some of the pleadings; and if this can be rectified by amendment of the pleadings, the court will in many cases permit it. The indulgence is most extensive in the case of bills: which being often framed upon an inaccurate state of the case, it was formerly the practice to supply their deficiences, and avoid the consequences of errors by special re-applications: but this tending to long and intricate pleading, special replication, requiring a rejoinder in which the defendant might in like manner supply defects in his answer, and to which the plaintiff might sur-rejoin, the special replication is now disused for this purpose: and the court will in general permit a plaintiff to rectify any error or supply any defect in his bill, either by amendment or by a supplemental bill, and will also permit, in some cases, a defendant in like manner to complete his answer, either by amendment or by a further answer. The answer, replication, rejoinder, &c. being settled, and the parties come to issue, witnesses on both sides are examined upon interrogatories, either in court or by commission in the country, wherein the parties usually join. Publication is then made of the depositions, and the cause is set down for hearing; after which follows the decree. But an appeal lies finally to the house of lords.

CHA'NCRE, *n. s.* } Fr. *chancre*; Ital. *can-*
CHA'NCROUS, *adj.* } *chero*; Lat. *cancer*. A malignant ulcer, usually arising from venereal maladies.

This small boil or pimple soon bursts and leaves a sore of a corresponding size, foul and sloughy at the bottom, with hard retorted edges, and which, from the corroding appearance which it assumes, has by the French been denominated *chancre*, a term which we have also adopted. *Bell on Lues Venerea.*

It is possible he was not well cured, and would have relapsed with a *chancre*. *Wiseman.*

You may think I am too strict in giving so many internals in the cure of so small an ulcer as a *chancre*, or rather *chancrous* callus. *Id.*

CHANDE'LIER, *n. s.* Fr. *chandelier*. A branch for candles.

CHANDELIER, in fortification, a kind of moveable parapet, consisting of a wooden frame, made of two upright stakes, about six feet high, with cross planks between them; serving to support facines to cover the pioneers.

CHANDERNAGORE, a town of Hindostan Proper, in Bengal, on the Hoogly, twenty-one leagues above Calcutta. It is a league in circumference, and is exposed on the western side; but its harbour is excellent, and the air is as pure as it can be on the banks of the Ganges. It was originally a French settlement, and had a very strong fort, which was taken and destroyed by admiral Watson in 1757.

CHA'NDLER, *n. s.* Fr. *chandelier*. An artisan whose trade is to make candles, or a person who sells them. A chandler's shop, however, is a place for almost every species of pedling merchandise.

The sack that thou hast drunken me, would have bought me lights as good cheap at the dearest *chandlers* in Europe. *Shakspeare.*

But whether black or lighter dyes are worn,
The *chandler's* basket on his shoulder borne,
With tallow spots thy coat. *Gay.*

CHANDLER (Edward), bishop of Durham, was educated at Emanuel College, Cambridge. In 1693 he became chaplain to Dr. Lloyd, bishop of Litchfield and Coventry; and in 1717 he was made bishop of the same diocese. In 1730 he was translated to Durham, and died in 1750, aged about eighty. He was a man of considerable learning, and, besides publishing various single sermons, distinguished himself by his Defence of Christianity, from the prophecies of the Old Testament, wherein are considered all the objections against this kind of proof, advanced in a late Discourse of the Grounds and Reasons of the Christian Religion, which has gone through three editions. He also wrote a Chronological Dissertation prefixed to Arnold's Commentary on Ecclesiasticus; and a curious biographical Preface to Dr. Cudworth's Treatise on Morality.

CHANDLER (Samuel), D.D., F.R.S., and F.S.A., a respectable dissenting minister, chosen, in 1716, pastor of the Presbyterian congregation at Peckham, where he continued some years. Here he married, and began to have a considerable family, when, by the fatal South-sea scheme of 1720, he lost the whole fortune he had received with his wife. He engaged in the trade of a bookseller; and officiated as joint preacher with the learned Dr. Lardner, at the meeting-house in Old Jewry, London: in which he afterwards succeeded as sole pastor. On the death of George II. in 1760, Dr. Chandler published a sermon on that event, in which he compared that prince to king David. This gave rise to a pamphlet, entitled, The History of the Man after God's own Heart; wherein the character of David was grossly vilified. Dr. Chandler, therefore, published, in 1762, A Review of the History of the Man after God's own Heart; and subsequently a A Critical History of the Life of David, 2 vols. 8vo. He died May 8th, 1766, aged seventy-three. In 1768 four volumes of his sermons were published by Dr. Amory; and in 1777 was published in 4to, his Paraphrase and Notes on the Epistles of St. Paul to the Galatians and Ephesians, with a Critical and Practical Commentary on the two Epistles of St. Paul to the Thessalonians. Dr. Chandler also wrote, A Vindication of the Christian Religion; Reflections on the conduct of the Modern Deists, in their late writings against Christianity; A Vindication of the Antiquity and Authority of Daniel's Prophecies, and their Application to Jesus Christ; and The History of Persecution.

CHANDLERY, the art and trade of making and selling candles. Generally, the manufacture and selling of sealing wax and wafers are united with it in London and other large towns; and a variety of other trades in the country. Our present object is not to attempt to enlighten the worthy tradesman in his various pursuits, but only to exhibit the best modes of manufacturing the first of these articles, candles.

These have been made of various materials. The Roman candles were first composed of strings surrounded with wax, or dipped in pitch, then of papyrus covered with wax; and sometimes of the pith of rushes, and wax or tallow. Wax candles were at this early period preferred on occasions of ceremony and for religious offices, and tallow for common use. Lord Bacon (Nat. Hist. cent. iv. and viii.) proposes various improvements in the composition of candles, the materials to be used for their wicks &c.; and made bishop of the same diocese. In 1730 he was translated to Durham, and died in 1750, aged about eighty. He was a man of considerable learning, and, besides publishing various single sermons, distinguished himself by his Defence of Christianity, from the prophecies of the Old Testament, wherein are considered all the objections against this kind of proof, advanced in a late Discourse of the Grounds and Reasons of the Christian Religion, which has gone through three editions. He also wrote a Chronological Dissertation prefixed to Arnold's Commentary on Ecclesiasticus; and a curious biographical Preface to Dr. Cudworth's Treatise on Morality.

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in modern times different resins, gums, and safine substances, have been mixed with or substituted for tallow, to produce a more durable candle, and one that should combine with this quality a steadier and brighter flame. See Nicholson's Journal, v. 1. The Chinese, at Canton, use a kind of candle, half an inch in diameter, which they call 'lobchock.' The wick is made of cotton, and is wrapped round a small stick or match of the bamboo cane: the body of the candle is of white tallow, coated to about the one-thirtieth of an inch thick, with a red waxy matter. This ingenious people obtain most of their tallow from the vegetable fat of the croton sebiferum or tallow-tree. Generally their candles are firmer than those made of animal tallow, and free from all offensive odor; but they are not equal to those of wax, or spermaceti. Inferior candles are also made of grease of too little consistence to be used, and sometimes of animal fat, without the contrivance of being coated with the firmer substance of the tallow-tree or wax. Their wicks are of different materials. Most commonly they use a light inflammable wood, in the lower extremity of which is pierced a small tube to receive an iron pin, which is fixed on the flat top of the candlestick, and thus supports the candle without the necessity of a socket. The candle-makers at Munich have for some years prepared tallow candles with wooden wicks. But in this country, and as a manufacture of some importance, a candle has been defined, a cotton or linen wick, loosely twisted, and covered with tallow, wax, or spermaceti, in a cylindrical figure; which, being lighted at the end, serves to illuminate a place in the absence of the sun. Cotton is therefore to be considered the staple wick, and tallow or wax as composing generally the body of the candle.

Tallow candles are again of two sorts; the dipped and the moulded: called technically dips and moulds; the latter are said to have been first invented by a M. Brez, of Paris, and are a modern improvement. Except with regard to melting the tallow and preparing the wick, the manufacture of these two kinds is very different.

1. *Of the cotton and the preparation of the wick.*—The best cotton for candle-wicks, and that which is said to be generally used for mould candles, comes from Turkey, and other parts of the Levant, packed in bales, and has often been the source of alarm, as likely to communicate the plague or other infectious disorders: that used for common candles is said to be brought from Smyrna in the wool, which grows on trees in a nut-shape, the shell enclosing the cotton.

The chandler employs women to wind the cotton into large balls; he then takes five, six, or eight of these balls, and drawing out the threads from each, cuts them into proper lengths, according to the size of the candles wanted. The machine for cutting the cotton is a smooth board, made to be fixed on the knees; on the upper surface are the blade of a razor and a round piece of cane, placed at a certain distance from one another, according to the length of the cotton wanted: the cotton is carried round the cane, and, being brought to the razor, is instantly separated from the several balls. The next operation is denominated 'pulling the cotton,' by which the threads are laid smooth, all knots and unevennesses removed, and, in short, the cotton is rendered fit for use. It is now spread, that is, placed at equal distances, on rods about half an inch in diameter and three feet long; these are called 'broaches.' When this dressing, as it is called, is not sufficient to keep the wicks separate from each other on the dipping sticks, a number of them are dipped in melted tallow, and being rubbed between the palms of the hands, the tallow which adheres to them cools, and the wick assumes a consistency.

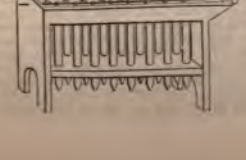
2. *Of rendering and preparing the tallow.*—The fat of the sheep and the ox furnished by butchers, by large and small tallow merchants, and wasteful or dishonest servants, is chiefly employed in this manufacture. For moulded candles, sheep-tallow, is used with a certain proportion of the best kind of ox-tallow; that which is yielded by sheep-fat being brighter and of firmer texture than ox-tallow, which is employed with inferior pieces of sheep-tallow for dips.

The tallow being sorted, is prepared by chopping the fat, and then boiling it for some time in a large copper, technically called rendering it; and when the tallow is extracted by the process of fire, the remainder is subjected to the operation of a strong iron press, and the cake that is left after the tallow is expressed from it is called greaves, or the crackling: with this dogs are fed, and a large portion of the ducks that supply the London markets. The liquid tallow is now drained through an iron sieve into another vessel, that all its fibrous or solid parts may be separated. A farther purification being still necessary, the tallow is put into another vessel with a portion of water, which is found to carry with it to the bottom many soluble impurities remaining in the tallow. After this process the tallow is deposited or stowed away in tubs for future use: some superior makers always preferring to mix tallow after a twelvemonth's age with that which is newly rendered.

3. *Of the operation of Dipping.*—The liquid tallow when drawn from the tubs is conveyed into a vessel called the mould, sink, or abyss, of an angular form like a prism, except that it is not equilateral, the side on which it opens being seldom above ten inches high, and the others, which make its depth, fifteen. On the angle formed by its greater sides, it is supported by two feet, and placed on a kind of bench, in form of a trough, to catch the droppings of the candles as taken out. The workman is seated so as conveniently to reach over this vessel: and he takes three sticks, or broaches, at a time, strung with the proper number of wicks, viz. sixteeen, if the candles are to be of eight in the pound; twelve, if of six in the pound, &c.; and holding them equidistant, by means of the second and third finger of each hand, which he puts between them, he plunges the wicks two or three times for their first lay, and and holding them some time over the vessel, to let them drain, hangs them on a rack, or frame, where they continue to grow hard and cold. When cooled, they are dipped a second time, then a third, as before; only for the third lay they are immersed but

twice, in all the rest thrice. The operation is repeated more or less times, according to the intended thickness of the candles. With the last dip they neck them, as it is called, i. e. plunge them below that part of the wick where the other lays ended. The vat is supplied from time to time during the operation with fresh tallow, which is kept to the proper heat by means of a gentle fire. Such is the old mode of dipping, and that still practised largely in the country. A modern invention has diminished much of the labor of the tallow-chandler, in the mode of dipping candles. The wicks are prepared as has been described, and spread on the broaches, and when five or six of these broaches are filled with cotton, they are, at both ends, fixed into two small pieces of box-wood, so as to unite, as it were, the several broaches into one moveable frame, full of wicks. This frame is suspended on one end of a lever over the vat, while the other is balanced with weights in a scale, which can be increased or diminished at pleasure. The workman has, therefore, only to guide this simple machine down and up. This apparatus has been further improved in some manufactories by the use of a horizontal wheel and an upright shaft, with twelve arms placed horizontally and at equal distances. A frame supporting six or more rods, having each, say, eighteen wicks, is suspended from the extremity of each arm; and the frames as they come successively over the dipping mould, are plunged downward in the tallow. One advantage thus obtained is, that, as the wheel moves round the drippings cool regularly, and return in a fixed time to the workmen. In all these methods it is usual for the maker to be continually checking the additional weights of his candles, by transferring the broaches for a moment to a pair of scales within reach.

4. *For making Mould Candles*—The mould in which moulded candles, or moulds, as they are termed, are cast, consists of a frame of wood, furnished with hollow metal cylinders, generally of pewter, of the diameter and length of the candle wanted. At the extremity of these is the neck, which is a little cavity in the form of a dome, having a moulding withinside, and pierced in the middle with a hole big enough for the cotton to pass through. The cotton is introduced into the shaft of the mould by a piece of wire being thrust through the aperture of the hook till it comes out of the neck; the other end of the cotton is so fastened as to keep it in a perpendicular situation, and in the middle of the candle; the moulds are then filled with warm tallow, and left to be very cold before they can be drawn out of the pipes. The following diagram will need no further explanation:



Some chandlers bleach their best candles by hanging them out on rods or broaches, to the dew, and earliest rays of the sun, for eight or ten days: care being taken to screen them from the too intense heat of the sun, and from rain.

The humble rush-light, so relieving to the bed of sickness, must not be forgotten as another labor of the chandler. Split rushes, and lately small cotton wicks, have been introduced into this manufacture, as intended to burn without the necessity of snuffing. The minuteness of the cotton wick makes it very well answer this purpose.

5. *Of Wax Candles made by the Ladle.*—The wicks being prepared, a dozen of them are tied by the neck, at equal distances, round an iron circle, suspended directly over a large basin of copper, tinned and full of melted wax: a large ladleful of this wax is gently poured on the tops of the wicks one after another, and the operation continued till the candle arrives at its destined bigness, with this precaution, that the first three ladles be poured on at the top of the wick, the fourth at the height of three-fourths, the fifth at one-half, and the sixth at one-fourth, in order to give the candle its pyramidal form. Then the candles are taken down, kept warm, and rolled and smoothed upon a walnut-tree table, with a long square instrument of box, smooth at the bottom.

6. Wax candles are also made by the hand. The workmen begin to soften the wax by working it several times in hot water, contained in a narrow but deep caldron. A piece of the wax is then taken out, and disposed by little and little around the wick, which is hung on a hook in the wall, by the extremity opposite to the neck; so that they begin with the large end, diminishing still as they descend towards the neck. In other respects the method is nearly the same as in the former case. However, it must be observed, that in the former case water is always used to moisten the several instruments, to prevent the wax from sticking; and, in the latter, oil of olives, or lard, for the hands, &c. The cylindrical wax-candles are either made as the former, with a ladle, or drawn. Wax-candles, or tapers, drawn, are so called because they are actually drawn in the manner of wire by means of two large rollers of wood turned by a handle, which turning backwards and forwards several times, pass the wick through melted wax contained in a brass basin, and at the same time through the holes of an instrument like that used for drawing wire, fastened on one side of the basin.

The advantage of wax over tallow candles consists not entirely, as some articles of fashion, in their comparative dearness, but in a mechanical superiority in the cup of liquid oil, afforded by the inferior degree of fusibility in the wax. That is, the oil rises within and around each wick by the common capillary attraction; tallow melts at the 92nd degree of Fahrenheit's thermometer; spermaceti at the 133rd degree; and bleached wax at 155 degrees: hence a smaller wick serves the less fusible wax candle, or sufficiently appropriates the rising oil. Though therefore the flame of a wax candle is not so bright as that of a tallow candle when just snuffed, its lesser bulk disposes it to bend and drop off at the top of the flame, and thus renders unnecessary the operation of snuffing. See Candles.

CHA'NFRIN, *n. s.* Old Fr. The forepart of the head of a horse, which extends from under the ears, along the interval between the eyebrows, down to his nose.

CHA'NGE, *v. a.*, *v. n.* & *n. s.*
Cha'ngeable, *adj.*
Cha'ngeableness, *n. s.*
Cha'ngeably, *adj.*
Cha'ngeful, *adj.*
Cha'ngeling, *n. s.*
Cha'nger, *n. s.*

Bar. Lat. *cambire*; perhaps, says Thomson, from *αμείβω*, *χαμείβω*; Ital. *cambiare*, *cangiare*; French, *changer*; Lat. *commuto*. To alter; to substitute; to commute; to barter. Changeling, from change, is a word arising from an odd superstitious opinion that the fairies steal away children, and put others that are ugly and stupid in their places; it is, however, employed in various senses; to signify an idiot, a fool, a natural; one apt to change; a waverer; anything substituted and put in the place of another. In ludicrous speech.

I will now put forth a riddle unto you; if you can find it out, then I will give you thirty sheets, and thirty *change* of garments. *Judges.*

For the elements were *changed* in themselves by a kind of harmony; like as in a psaltery notes *change* the name of the tune, and yet are always sounds. *Wisdom.*

As soon as he saw the tomb where his moder lay,
His colour gan to *chaunge* into a deadly hew.
Chaucer's Canterbury Tales.

Here is the fountaine of the wordes good!
Now therefore if thou wilt enriched bee,
Arise thee well, and *chaunge* thy wilful mood;
Least thou perhaps hereafter wish and be withstood.
Spenser.

Unsound plots and *changeful* orders are daily devised for her good, yet never effectually prosecuted. *Id.*

And her base elfin breed there for thee left:
Such men do *changelings* call, so changed by fairies' theft. *Id. Faerie Queene.*

At length he betrothed himself to one worthy to be liked, if any worthiness might excuse so unworthy a *changeableness*. *Sidney.*

One Julia, that his *changing* thought forgot,
Would better fit his chamber. *Shakspeare.*

Thou shalt not see me blush,
Nor *change* my countenance for this arrest;
A heart unspotted is not easily daunted. *Id.*

Now the tailor make thy doublet of *changeable* taffeta; for thy mind is a very opal. *Id.*

I folded the writ up in the form of the other,
Subscribed it, gave the impression, placed it safely,
The *changeling* never known. *Id.*

I am weary of this moon; would he would *change*. *Id.*

Take seeds or roots, and set some of them immediately after the *change*, and others of the same kind immediately after the full. *Bacon's Nat. Hist.*

If how long they are to continue in force, be no where expressed, then have we no light to direct our judgment concerning the *changeableness* or immutability of them, but considering the nature and quality of such laws. *Hooker.*

A steady mind will admit steady methods and counsels; there is no measure to be taken of a *changeable* humour. *L'Estrange.*

'Twas not long
Before from world to world they swung;
As they had turned from side to side,
And as they *changelings* lived, they died.
Hudibras.

The French and we still *change*; but here's the curse,
They *change* for better, and we *change* for worse.
Dryden.

Changelings and fools of heaven, and thence shut out,
Wildly we roam in discontent about. *Id.*

A shopkeeper might be able to *change* a guinea or a moidore, when a customer comes for a crown's worth of goods. *Swift.*

———Changes will befall, and friends may part,
But distance only cannot *change* the heart. *Cowper.*

Where 'midst the *changeful* scenery ever new,
Fancy a thousand wondrous forms descries. *Beattie.*

——————— Upon a tone,
A touch of her's, his blood would ebb and flow,
And his cheek *change* tempestuously—his heart
Unknowing of his cause of agony. *Byron.*

Changes, in arithmetic, the permutations or variations of any number of things, with regard to their position, order, &c. as how many changes may be rung on a number of bells; how many different ways any number of persons may be placed; how many variations may be made of any number of letters, or any other things proposed to be varied. See Combination. To find out such number of changes, multiply continually together all the terms in a series of arithmetical progression, whose first term and common difference are each unity or 1, and the last term the number of things proposed to be varied, thus, 1 × 2 × 3 × 4 × 5, &c. till the last number be the proposed number of things. So that if it be asked, how many different ways a company of six persons may be placed, at table for instance, the answer will be 720 ways: but if only one person is added to this small company, the various ways in which they may be placed will amount to 5040: and if the company be increased to thirteen persons, the possible variations in ranking them will amount to the astonishing number of 6,227,020,800 different ways. This may give some idea of the incredible (we had almost said infinite) number of possible combinations of the twenty-four letters of the alphabet.

Changer, an officer belonging to the king's mint. See Mint, and Money-changer.

CHANG-HAI, a town of China, in the province of Kiang-nan. In this town and the villages dependent on it, are more than 200,000 weavers of cotton cloth. It is eighteen miles south-east of Song Kiang.

CHANG-TONG, an important province of the Chinese empire, bounded on the east by the province of Pe-tche-li and part of Honan, on the south by that of Kiang-nan, on the east by the Eastern Sea, and on the north by the gulf of Pe-tche-li. Along the coast are several forts. It is crossed towards the south by a chain of mountains, above 170 miles in length, and is in this quarter composed of hills and swamps, interspersed with large tracts of country, resembling our own fenny districts in Cambridgeshire. The province contains numerous lakes, rivers, and canals: through that which is called the Grand Canal, the principal navigation to the south of Pekin is carried on. The principal productions are a coarse silk, wheat, millet, and indigo: and many of the inhabitants subsist by fishing. The province is divided into six districts, which contain six towns of the first class, and 114 of the second and third. The capital is Tsi-nan, on the south banks of the river Tsi, or Tsing; and among the others of larger size, are Yentcheou, Tong-chang-tsin, Kin-kieng. The celebrated Confucius was born at Kio-feou, which contains several monuments to his memory. Population 24,000,000.

CHA'NNEL, *n. s.* & *v. a.* Lat. *canalis;* Fr. *canal;* the course of a stream of water, a longitudinal cavity either for water or any other substance. A strait or narrow sea between two countries, as the British channel, between Britain and France; St. George's Channel, between England and Ireland. Metaphorically a course of procedure. The verb signifies to cut any thing in channels.

It is not so easy, now that things are grown into an habit, and have their certain course, to change the *channel*, and turn their streams another way.
Spenser's State of Ireland

Draw them to Tyber's banks, and weep your tears
Into the *channel*, till the lowest stream
Do kiss the most exalted shores of all. *Shakspeare.*

No more shall trenching war *channel* her fields,
Nor bruise her flowerets with the armed hoofs
Of hostile paces. *Id.*

Those oaken giants of the ancient race,
That ruled all seas, and did our *channel* grace.
Marvell.

Complaint, and hot desires, the lover's hell,
And scalding tears, that wore a *channel* where they
fell. *Dryden's Fables.*

Torrents, and loud impetuous cataracts,
Roll down the lofty mountain's *channeled* sides,
And to the vale convey their foaming tides.
Blackmore.

Oh! bear me hence, where water's force displays
More useful energy; where classic praise
Adorned the names of chiefs long dead, who brought
Thro' *channeled* rocks concentering streams, and taught
One aqueduct divided lands to lave,
And hostile realms to drink one common wave.
Bishop.

CHAN-SI, a province of China, and one of the smallest in the empire, is bounded on the east by Petcheli, on the south by Honan, on the west by Chen-si, and on the north by the great wall. The climate is salubrious and agreeable, and the soil generally fertile, though the country is full of mountains. The country abounds in grapes, musk, porphyry, marble, lapis lazuli, and jasper of various colors; and iron mines as well as salt pits and crystal are very common. Here are five cities of the first class, and eighty-five of the second and third: the principal are Tai-youen-fou the capital, Ngan-y, Fuen-tcheou-fou, and Tai-tong-fou. Carpets and rugs are also manufactured in the province.

CHA'NT, *v. a.* & *v. n.*
CHA'NTER, *n. s.*
CHA'NTRESS, *n. s.*
CHA'NTRY, *n. s.*
Fr. *chanter.* To sing, to celebrate by song, to make melody with the voice. Chanter and chantress distinguish the agent and the sex of those who thus sing and make melody.

They *chant* to the sound of the viol, and invent to themselves instruments of musick. *Amos*, vi. 7.

He sette not his benefice to hire,
And let his shepe acombred in the mire
And ran unto London, unto seint Poules,
To seeken him a *chanterie* for soules. *Chaucer.*

Now go with me, and with this holy man,
Into the *chantry* by. *Shakspeare.*

The poets *chant* in the theatres, the shepherds in the mountains. *Bramhall.*

Sweet bird, that shunn'st the noise of folly,
Most musical, most melancholy!
Thee, *chantress* oft, the woods among,
I woo to hear thy even song. *Milton.*

A pleasant grove,
With *chant* of tuneful birds resounding loud. *Id.*

Heaven heard his song, and hastened his relief;
And changed to snowy plumes his hoary hair,
And winged his flight to *chant* aloft in air. *Dryden*

You curious *chanters* of the wood,
That warble forth dame nature's lays, *Wotton.*

How carols now the lusty muleteer,
Of love, romance, devotion is his lay!
As whilome he was wont the leagues to cheer,
His quick bells wildly jingling on the way,
Now as he speeds, he *chaunts*—Viva el Rey!
Byron's Childe Harold.

CHANT, GREGORIAN, introduced by pope Gregory the Great, who established schools of chanters, and corrected the church music. This at first was called the Roman song; afterwards the plain song; as the choir and people sing in unison.

CHA'NTICLEER, *n. s.* from *chanter* and *clair*, Fr. The name given to the cock from the clearness and loudness of his crow.

A yerd she had, enclosed all about,
And stickes, and a drie ditch without,
In which she had a cok highte *chanticlere*,
In all the land of crowing n'as his pere,
Chaucer's Cant. Tales.

And cheerful *chanticleer*, with his note shrill,
Had warned once, that Phœbus' fiery car
In haste was climbing up the eastern hill. *Spenser.*

CHANTILLY, a small town of France, in the department of the Seine and Oise, twenty-five miles north from Paris. It has a forest, and near it stood the magnificent hunting seat of the prince of Conde, which was destroyed in the Revolution.

CHAOASES, an order of horse, in the service of the grand seignior, who always go out with the bashaw.

CHA'OS, *n. s.*
CHAO'TIC, *adj.*
Lat. *chaos.* The mass of matter supposed to be in confusion before it was divided by the creation into its proper classes and elements. Confusion, irregular mixture. Anything where the parts are undistinguished.

The whole universe would have been a confused *chaos*, without beauty or order. *Bentley.*

Had I followed the worst, I could not have brought church and state to such a *chaos* of confusions as some have done. *Gauden for King Charles*

When the terraqueous globe was in a *chaotick* state, and the earthly particles subsided, then those several beds were, in all probability, reposited in the earth.
Derham.

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And winged his flight to *chant* aloft in air. *Dryden.*

You curious *chanters* of the wood,
That warble forth dame nature's lays, *Wotton.*

How carols now the lusty muleteer,
Of love, romance, devotion is his lay!
As whilome he was wont the leagues to cheer,
His quick bells wildly jingling on the way,
Now as he speeds, he *chaunts*—Viva el Rey!
Byron's Childe Harold.

Chant, Gregorian, introduced by pope Gregory the Great, who established schools of chanters, and corrected the church music. This at first was called the Roman song; afterwards the plain song; as the choir and people sing in unison.

CHA'NTICLEER, *n. s.* from *chanter* and *clair*, Fr. The name given to the cock from the clearness and loudness of his crow.

A yerd she had, enclosed all about,
And stickes, and a drie ditch without,
In which she had a cok highte chanticlere,
In all the land of crowing n'as his peer,
Chaucer's Cant. Tales.

And cheerful *chanticleer*, with his note shrill,
Had warned once, that Phœbus' fiery car
In haste was climbing up the eastern hill. *Spenser.*

CHANTILLY, a small town of France, in the department of the Seine and Oise, twenty-five miles north from Paris. It has a forest, and near it stood the magnificent hunting seat of the prince of Conde, which was destroyed in the Revolution.

CHAOASES, an order of horse, in the service of the grand seignior, who always go out with the bashaw.

CHA'OS, *n. s.* } Lat. *chaos.* The mass of
Chao'tic, *adj.* } matter supposed to be in confusion before it was divided by the creation into its proper classes and elements. Confusion, irregular mixture. Anything where the parts are undistinguished.

The whole universe would have been a confused chaos, without beauty or order. *Bentley.*

Had I followed the worst, I could not have brought church and state to such a chaos of confusions as some have done. *Gauden for King Charles.*

When the terraqueous globe was in a chaotic state, and the earthly particles subsided, then those strata beds were, in all probability, reposited in the earth. *Derham.*

Alike in ignorance, his reason such,
Whether he thinks too little, or too much:
Chaos of thought and passion, all confused,
Still by himself abused or disabused. *Pope.*

Here, waiter, more wine, let me sit while I'm able,
Till all my companions sink under the table;
Then, with *chaos* and blunders encircling my head,
Let me ponder and tell what I think of the dead.
Goldsmith.

Chaos. See Earth. Chaos is represented by the ancients as the first principle, ovum, or seed of nature and the world. All the sophists, sages, naturalists, philosophers, theologues, and poets, held that chaos was the eldest and first principle, τὸ ἀρχαιον χαος. The Barbarians, Phœnicians, Egyptians, Persians, &c. refer the origin of the world to a rude, mixed, confused mass of matter. The Greeks, Orpheus, Hesiod, Menander, Aristophanes, Euripides, and the writers of the Cyclic Poems, all speak of the first chaos: the Ionic and Platonic philosophers build the world out of it. Plato expressly says, 'chaos, or first matter, was the γενος, stock, out of which every thing was composed. The Stoics hold, that as the world was first made of a chaos, it shall at last be reduced to a chaos. Lastly, the Latins, as Ennius, Varro, Ovid, Lucretius, Statius, &c. are all of the same opinion. Nor is there any sect or nation whatever, that does not derive the διακοσμησις, the structure of the world, from a chaos. It does not appear who first broached the notion of a chaos. Moses, the earliest of all writers, derives the origin of this world from a confusion of matter, dark, void, deep, without form (tohu bohu); which is precisely the chaos of the Greeks and Barbarian philosophers. Moses goes no farther than the creation from this chaos; and where Moses stops, there, precisely, do all the rest. Dr. Burnet endeavours to show, that as the ancient philosophers, &c. who wrote of the cosmogony, acknowledged a chaos for the principle of their world; so the divines, or writers of the theogony, derive the origin or generation of their fabled gods from the same principle.

Chaos, in entomology, a genus of insects belonging to the order of vermes zoophyta. The body has no shell or covering. It is capable of reviving after being dead to appearance for a long time, but has no joints or external organs of sensation. There are five species, mostly obtained by infusions of different vegetables in water, and only discoverable by the microscope. See Animalcule.

CHAP, *v. a.* & *n. s.* } Dutch, *kappen*; Bel-
Chapt, or } gic, *gap*; to cut. This
Cha'pped, *past part.* } word seems originally the same with chop; nor were they probably distinguished at first, otherwise than by accident; but they have now a meaning somewhat different, though referrible to the same original sense. To break into hiatus, or gapings. The noun is derived from the verb, and signifies a cleft, an aperture, an opening, a gaping, a chink.

Like a table upon which you may run your finger without rubs, and your nail cannot find a joint; not horrid, rough, wrinkled, gaping, or *chapt*. *Ben Jonson.*

Cooling ointment made,
Which on their sunburnt cheeks and their *chapt* skins they laid. *Dryden's Fables.*

It weakened more and more the arch of the earth, drying it immoderately, and *chapping* it in sundry places. *Burnet.*

Then would unbalanced heat licentious reign,
Crack the dry hill, and *chap* the russet plain.
Blackmore.

Chap, *n. s.* } This is not often used,
Cha'pless, *n. s.* } except by anatomists, in
Cha'p-fallen, *adj.* } the singular. The upper
Chaps, *n. s.* } or under part of a beast's mouth.

So on the downs we see
A hastened hare from greedy greyhound go,
And past all hope, his *chaps* to frustrate so. *Sidney.*

Open your mouth; you cannot tell who's your friend; open your *chaps* again. *Shakspeare.*

Now *chapless*, and knocked about the mazzard with a sexton's spade. *Id.*

Froth fills his *chaps*, he sends a grunting sound,
And part he churns, and part befoams the ground.
Dryden.

A *chapfallen* beaver loosely hanging by
The cloven helm. *Id.*

The nether *chap* in the male skeleton is half an inch broader than in the female. *Grew's Museum.*

Chap. Goth. *skapur*, from skapa, to beget; a lad, a boy; a vulgar appellation.

CHAPE, *n. s.* } Fr. *chape*; Σκεπη. Thus
Cha'peless. } derived, it signifies a cover, or the top of a scabbard made of brass or silver; but traced from Fr. *echope*; Sax. *schappe*; from Lat. *capio*. It is applied to the catch of any thing by which it is held in its place; as the hook of a scabbard by which it sticks in the belt; the point by which a buckle is held to the back strap.

This is Monsieur Parolles, that had the whole theory of the war in the knot of his scarf, and the practice in the *chape* of his dagger. *Shakspeare.*

An old rusty sword, with a broken hilt, and *chapeless*, with two broken points. *Id.*

CHAPEAU, in heraldry, an ancient cap of dignity worn by dukes, being scarlet-colored velvet on the outside, and lined with a fur. It is frequently borne above an helmet instead of a wreath, under gentlemen's crests.

CHA'PEL, *n. s.* } Heb. *kaba eli*; Ara-
Cha'pellany, *n. s.* } bic, *kaaba eli*; Coptic,
Cha'pelry, *n. s.* } *caph el*; Gr. καπη Ελι; Goth. *kapell*; Ital. *capella*; Fr *chapelle*; the house of God; a place of worship. Applied generally, since the act of toleration, to houses of worship indiscriminately, with the exception of the parish churches. In the establishment of the country, however, they are particularly distinguished, as the second illustration will manifest.

———————— : a little wyde
There was an holy *chappell* edifyede,
Wherein the hermite dewly wont to say
His holy things, each morne and eventyde;
Thereby a christal streame did gently play,
Which from a sacred fountaine welled forth alway.
Spenser.

A *chapel* is of two sorts; either adjoining to a church, as a parcel of the same, which men of worth build; or else separate from the mother church, where the parish is wide, and is commonly called a *chapel* of ease, because it is built for the ease of one or more parishioners, that dwell too far from the church, and is served by some inferiour curate, provided for at the charge of the rector, or of such as have benefit by it, as the composition or custom is. *Cowell.*

She went in among those few trees, so closed in the tops together, as they might seem a little *chapel.* *Sidney.*

Will you dispatch us here under this tree, or shall we go with you to your *chapel?* *Shakspeare.*

Where truth erecteth her church, he helps errour to rear up a *chapel* hard by. *Howel.*

A *chapellany* is usually said to be that which does not subsist of itself, but is built and founded within some other church, and is dependent thereon. *Id.*

CHAPELS, FREE, such as were founded by kings of England. They are free from all episcopal jurisdiction, and only to be visited by the founder and his successors; which is done by the lord chancellor: yet the king may license any subject to build and endow a chapel, and by letters patent exempt it from the visitation of the ordinary.

Parochial CHAPELS, differ from parish churches only in name.

CHAPELAIN (James), an eminent French poet born at Paris in 1595, and often mentioned in the works of Balzac, Menage, and others. He wrote several works, particularly, an heroic poem, called La Pucelle, ou France Delivrée, which employed him several years. He was one of the king's counsellors, and very covetous; and died in 1674, very rich.

CHAPEL-HILL, a post town of the United States, in Orange County, North Carolina, the seat of the new University of North Carolina. It is eleven miles south by east of Hillsborough, and 465 south-west of Philadelphia.

CHA'PERON, *n. s.* French. A kind of hood or cap worn by the knights of the garter in their habits.

I will omit the honourable habiliments, as robes of state, parliament robes, *chaperons*, and caps of state. *Camden.*

CHAPERON, CHAPERONNE, or CHAPEROON, was a sort of hood or covering for the head, anciently worn by both men and women, of all ranks, and afterwards appropriated to the doctors, and licentiates in colleges, &c. Hence the name passed to certain little shields, and other funeral devices, placed on the foreheads of the horses that drew the hearses in pompous funerals, which are still called chaperoons, or shafferoons; because these were originally fastened on the chaperonnes, worn by those horses.

CHA'PITER, *n. s.* *Chapiteau*, Fr. The upper part or capital of a pillar.

He overlaid their *chapiters* and their fillets with gold. *Exodus.*

CHA'PLAIN, *n. s.* } Lat. *capellanus*, one
CHA'PLAINSHIP, *n. s.* } that officiates in domestic worship, or that performs divine service in a chapel, and attends the king or other person, for the instruction of him and his family, to read prayers, and preach. The peers have the privilege of conferring chaplainships according to their rank. See PEERAGE. Chaplainship is the possession of the office or its revenues.

Wishing me to permit
John de la Court, my *chaplain*, a choice hour
To hear from him a matter of some moment.
Shakspeare.

Chaplain, away! thy priesthood saves thy life. *Id.*

Since death and sin did human nature blot,
The chiefest blessing Adam's *chaplain* got. *Marvell.*

A chief governor can never fail of some worthless illiterate *chaplain*, fond of a title and precedence. *Swift.*

CHA'PLET, *n. s.* *Chapelet*, Fr. A garland or wreath to be worn about the head; and a string of beads worn in the Romish church.

Where bene the nosegayes that she dight for thee,
The coloured *chaplets* wrought with a chiefe,
The knotted rush-ringes, and gilt rosemaree,
For she deemed nothing too deere for thee.
Spenser's Shepheard's Calendar.

Upon old Hyems' chin, and icy crown,
An odorous *chaplet* of sweet summer's buds,
Is, as in mockery, set. *Shakspeare.*

I strangely long to know
Whether they nobler *chaplets* wear,
Those that their mistress' scorn did bear,
Or those that were used kindly. *Suckling.*

The winding ivy *chaplet* to invade,
And folded fern, that your fair forehead shade.
Dryden.

They made an humble *chaplet* for the king. *Swift.*

CHA'PLET, in architecture, a little moulding carved into round beads, pearls, or olives.

CHA'PLET, a tuft of feathers on the peacock's head.

CHAPLET is frequently used to signify the circle of a crown. There are instances of its being borne in a coat of arms, as well as for crests; the paternal arms for Lascelles are *argent*, three chaplets, *gules*.

CHA'PMAN, *n. s.* ceapman, Sax. A cheapner; one that offers as a purchaser.

And spedily the tables were ylaide,
And to the diner faste they hem spedde,
And richely this monk the *chapman* fedde;
And after dinner, Dan John sobrely
This *chapman* toke apart. *Chaucer's Cant. Tales.*

Fair Diomede, you do as *chapmen* do,
Dispraise the thing that you intend to buy.
Shakspeare.

Yet have they seen the maps, and bought 'em too,
And understand 'em as most *chapmen* do.
Ben Jonson.

CHAPONE (Hester), an authoress, the daughter of T. Mulso, Esq. was born at Twywell in Northamptonshire, in 1727, and at the age of nineteen years is said to have written a romance. She was then discouraged by her mother from continuing her studies, but at stolen opportunities composed the interesting story of Fidelia in the Adventurer, an Ode to Peace, and a Poem prefixed to the translation of Epictetus, by Mrs. Carter. She married, in 1760, Mr. Chapone, a legal gentleman, but her married life lasted only ten months, and was not happy. She was now and for the rest of her life a widow in narrow circumstances. In 1770 she went with Mrs. Montague to Scotland, and in 1773 appeared her Letters on the Improvement of the Mind. This was followed by a volume of Miscellanies. But the loss of a beloved niece, to whom her Letters were addressed, and that of her brother, preying upon her mind, she gradually declined in health, and expired at Hadley, December 25th, 1801. Her works, with a sketch of her life were collected and published in 1807.

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The coloured *chaplets* wrought with a chief,
The knotted rush-ringes, and gilt rosemarie,
For she deemed nothing too deere for thee.
Spenser's Shepheard's Calender.

Upon old Hyems' chin, and icy crown,
An odorous *chaplet* of sweet summer's buds,
Is, as in mockery, set.

I strangely long to know
Whether they nobler *chaplets* wear,
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CHAPPE, in heraldry, the dividing an escutcheon by lines drawn from the centre of the upper edge to the angles below, into three parts, the sections on the sides being of different metal or color from the rest.

CHA'PTER, *n. s.* *Chapitre*, Fr. from *capitulum*, Latin. A division of a book. The proverbial phrase, 'to the end of the chapter,' signifies throughout; to the end.

Now for as moche as the second part of penitence stont in confession of mouth, as I began in the first *chapitre*, I say, seint Augustine saith sinne is every word and every dede, and all that men coveiten, against the law of Jesus Christ. *Chaucer. Persones Tale.*

The first book we divide into three sections; whereof the first is these three *chapters*. *Burnet's Theory.*

If these mighty men at *chapter* and verse, can produce no scripture, to overthrow our church ceremonies, I will undertake to produce scripture enough to warrant them. *South.*

Money does all things; it gives and it takes away, it makes honest men and knaves, fools and philosophers; and so forward, mutatis mutandis, *to the end of the chapter*. *L'Estrange.*

CHA'PTER, from *capitulum*, signifieth, in our common law, as in the canon law, whence it is borrowed, an assembly of the clergy of a cathedral or collegiate church. *Cowell.*

The abbot takes the advice and consent of his *chapter*, before he enters on any matters of importance.
Addison on Italy.

So skimming the fat off,
Say grace with your hat off,
O, then with what rapture
Will it fill dean and *chapter*! *Gay.*

The place where delinquents receive discipline and correction. *Ayliffe's Parerg.*

A decretal epistle. *Id.*

Chapter-house; the place in which assemblies of the clergy are held.

Though the canonical constitution does strictly require it to be made in the cathedral, yet it matters not where it be made, either in the choir or *chapter-house*. *Ayliffe's Parerg.*

CHAPTER, in ecclesiastical polity, an assembly of the clergy of a collegiate church or cathedral. It was in the eighth century that the body of canons began to be called a chapter. They were a standing council to the bishop, and, during the vacancy of the see, had the jurisdiction of the diocese. In the early ages the bishop was head of the chapter; afterwards abbots and other dignities were preferred to this distinction. The deans and chapters had the privilege of choosing the bishops in England; but Henry VIII. got this power vested in the crown. Those he thus regulated were called deans and chapters of the new foundation; such are Canterbury, Winchester, Ely, Carlisle, &c. See DEAN.

CHA'PTREL, *n. s.* probably from chapiter. The capitals of pillars, or pilasters, which support arches, commonly called imposts.

Let the keystone break without the arch, so much as you project over the jaums with the *chaptrels*.
Moxon.

CHAR. Lat. *scarus*; Irish, *cear*, red; from Κίῤῥὸς, a kind of trout, found only in Winandermeer, Lancashire.

CHAR, *n. s.* & *v. a.* } Bar. Lat. *carbo*;
CHA'RCOAL. } Fr. *charbon*, from *καιω*, wood burnt to cinders. To blacken wood by burning it in the fire. Charcoal is thus produced.

Spraywood, in *charring*, parts into various cracks.
Woodward

Love is a fire that burns and sparkles
In men as naturally as in *charcoals*,
Which sooty chymists stop in holes,
When out of wood they extract coals. *Hudibras.*

Is there who, locked from ink and paper, scrawls,
With desperate *charcoal* round his darkened walls?
Pope.

I see no frightful spectacle of infuriated power, or suffering humanity—I see no tortures—I hear no shrieks—I no longer see the human heart *charred* in the flame of its own vile and paltry passions—black and bloodless—capable only of catching and communicating that destructive fire by which it devours, and is itself devoured. *Curran's Speeches.*

CHAR, *n. s.* & *v. n.* } Teut. *kar*; Saxon,
CHA'RWOMAN, *n. s.* } *cerre*; Swedish, *kora*; Sax. *cerren*; Teut. *kerren*; to go about, to turn. Thus the noun signifies a turn, a job, a day's work. To char is to work at other's houses by the day, without being a hired servant. Thus a charwoman is a woman hired incidentally for odd work, or single days.

A meer woman, and commanded
By such poor passion, as the maid that milks
And does the meanest *chars*. *Shakspeare.*

She, harvest done, to *char* work did aspire;
Meat, drink, and two-pence were her daily hire.
Dryden.

Get three or four *char-women* to attend you constantly in the kitchen, whom you pay only with the broken meat, a few coals, and all the cinders.
Swift.

CHARA, in botany, a genus of the monandria order and monœcia class of plants. Male, CAL. none: COR. none: anthera placed under the germen. Female, CAL. tetraphyllous: COR. none; the stigma quinquefid: SEED, polyspermous-berry.

CHARABON. See CHERIBON.

CHARACENE, the most southern part of Susiana, a province of Persia, lying on the Persian Gulf, between the Tigris and the Eulæus; so named from the city of Chorax. It was seized by Pasines, the son of Sogdonacus, king of the neighbouring Arabs, during the troubles of Syria, and erected into a kingdom. Lucian calls him Hyspasines, and adds, that he ruled over the Characeni and the neighbouring people: he died in the eighty-fifth year of his age. The only other kings of this country, mentioned by the ancients, are Teræus, who died in the ninety-second year of his age; and after him Artabazus VII. as Lucian informs us, who was driven from the throne by his subjects, but restored by the Parthians.

CHA'RACTER, *n. s.* & *v. a.*
CHARACTERI'STICAL, *adj.*
CHARACTERI'STICALNESS.
CHARACTERI'STIC.
CHA'RACTERIZE, *v. a.*
CHA'RACTERLESS.
CHA'RACTERY.
} Lat. *character*; Gr. Χαρακτηρ. Its primary sense is a mark, a stamp, an impression. In its secondary meaning it is applied to the instrument that

produces the mark, stamp, or impression: thus, the hand or manner of writing is termed character; so are letters used in printing or writing. Hence it has proceeded to denote whatever distinguishes any thing or person; the marks and impressions which they exhibit of qualities good or bad. Whatever enacts, represents, or describes, gives the character. Hence fictitious personages on the stage, are called the characters. The peculiar properties, whether natural or moral, or both, constitute the character. As these are the qualities that strike or impress others, they are so termed.

I found the letter thrown in at the casement of my closet. You know the *character* to be your brother's. *Shakspeare.*

But his neat cookery!——
He cuts our roots in *characters*. *Id.*
Shew me one scar *charactered* on thy skin. *Id.*
And mighty states *characterless* are grated
To dusty nothing. *Id.*
All my engagements I will construe to thee,
All the *charactery* of my sad brows. *Id.*

They may be called anticipations, prenotions, or sentiments, *characterised* and engraven in the soul, born with it, and growing up with it. *Hale's Origin of Mankind.*

In outward also her resembling less
His image, who made both; and less expressing
The *character* of that dominion given
O'er other creatures. *Milton. Paradise Lost.*
The pleasing poison
The visage quite transforms of him that drinks,
And the inglorious likeness of a beast
Fixes instead, unmoulding reason's mintage,
Charactered in the face. *Id.*
Each drew fair *characters*, yet none
Of these they feigned excels their own. *Denham.*

The shining quality of an epick hero, his magnanimity, his constancy, his patience, his piety, or whatever *characteristical* virtue his poet gives him, raises our admiration. *Id.*

There are faces not only individual, but gentilitious and national; European, Asiatick, Chinese, African, and Grecian faces are *characterised*. *Arbuthnot on Air.*

The chief honour of the magistrate consists in maintaining the dignity of his *character* by suitable actions. *Atterbury.*

It is some commendation, that we have avoided publicly to *characterise* any person, without long experience. *Swift.*

This vast invention exerts itself in Homer, in a manner superior to that of any poet; it is the great and peculiar *characteristick* which distinguishes him from all others. *Pope.*

This subterraneous passage is much mended, since Seneca gave so bad a *character* of it. *Addison on Italy.*

Some write a narrative of wars, and feats
Of heroes little known; and call the rant
An history: describe the man, of whom
His own coevals took but little note,
And paint his person, *character*, and views,
As they had known him from his mother's womb.
Cowper. The Garden.

Character, in a general sense, signifies a mark or figure, drawn on paper, metal, stone, or other matter, with a pen, graver, chissel, or other instrument. The various kinds of characters may be reduced to three classes, viz. literal characters, numeral characters, and abbreviations.

Characters, Literal, are letters of the alphabet, serving to indicate some articulate sound, expressive of some idea or conception of the mind. See Alphabet.

Characters, Arabic Numeral, are the common figures now used throughout Europe and America, in all sorts of calculations. See Arithmetic.

Characters, French Numeral, used in the ci-devant chamber of accounts, and by those concerned in the revenue, were chiefly Roman numerals, only in small letters: thus j, or i, 1, v 5, x 10, l 50, and c 100. But instead of m, or cjc, the Greek γ was used for 1000; and sometimes jjj^{xxx} for 90: b was also used for v 5.

Characters, Greek Numeral. The Greeks had three ways of expressing numbers:—I. Every letter, according to its place in the alphabet, denoted a number from α, 1, to ω, 24. In this manner the books of Homer's Iliad are numbered. II. Another way was by dividing the alphabet into, first, 8 Units: α 1, β 2, &c. Secondly, 8 tens: ι 10, κ 20, &c. Thirdly, 8 hundreds: ρ 100, σ 200, &c. And, to complete these numbers, the contraction ϛ stood for 6, as well as for 90 and 900. Thousands they expressed by a point or accent under a letter, e. g. α 1000, β 2000, &c. III. The third way was by six capital letters, being the initials of the words; thus, I [ια for μια] 1; Π [πεντε] 5; Δ [δεκα] 10; Η [Ηκατον] 100; Χ [χιλια] 1000; Μ [μυρια] 10,000: and when the letter Π enclosed any of these, except I, it showed the enclosed letter to be five times its own value, as

$\overline{|\Delta|}$ 50, $\overline{|H|}$ 500, $\overline{|X|}$ 5000, $\overline{|M|}$ 50,000.

Characters, Hebrew Numeral. The Hebrew alphabet was divided into nine units: א 1, ב 2, &c.—9 tens: י 10, כ, 20, &c.—9 hundreds: ק 100, ר 200, &c. ך 500, ם 600, ן 700, ף 800, ץ 900. Thousands were sometimes expressed by the units prefixed to hundreds, as ארלד, 1534, &c., and even to tens, as, אע, 1070, &c. But generally by the word אלף, 1000; אלפים, 2000; אלפים, with the other numerals prefixed, to signify the number of thousands; e.g. באלפים, 3000, &c.

Characters, Roman Numeral, consist of seven majuscule letters of the Roman alphabet, viz. I, V, X, L, C, D, M. The I denotes 1, V 5, X 10, L 50, C 100, D 500, and M 1000. The I repeated twice makes 2, II; thrice, 3, III; four is expressed thus IV, as I before V or X takes one from the number expressed by the letters. One I added to V. makes VI. 6; two, VII. 7; and three, VIII. 8; nine is expressed by an I before X, thus, IX. X before L or C, diminishes the number by tens: thus, XL denotes forty, XC ninety; but X after L or C, proportionably increases them; as LX sixty; LXX seventy, &c. The C before D or M diminishes each by a hundred. Five hundred is sometimes expressed by an I before a C inverted thus IƆ; and 1000 by an I between two C's, the one direct and the other inverted, thus CIƆ. The addition of C and Ɔ before and after, raises CIƆ by tens; thus, CCIƆƆ expresses ten thousand, CCCIƆƆƆ, a hundred thousand. The Romans also expressed any number of thousands

numeral less than a
5000; $\overline{LX}$ 60,000;
llion, MM two mil-

PECTS, NODES, &c.
or S Conjunction
Semisextile
extile
. Tredecile
Trine
. Quincunx
NETS. See PLANETS.
NS. See ZODIAC.
RY. See CHEMISTRY.
Y AND TRIGONOME-
E
minute
second
third
ourths
perpendicular
⊐ rectangle
square
triangle
POETRY, RHETORIC,
t
phasis, or accent
phen
terrogation
aragraph
arenthesis
riod
otation
references
ction
nicolon
ND PHARMACY, ARE

uantities
bark
ing to art
y thing
, laudanum, &c.
See MUSIC.
W WRITINGS AND

tory, is synonymous
genera of animals,

species of literary
e to the idler who
t be a word of two
istinct word; and
ncealed in an enig-
rately, and then to-
n to young persons
n a Dictionary of

ology, a genus be-
. The beak is cy-
rils are linear, and

the feet have three toes. There are about thirty-two species, of which the following are the most remarkable: 1. C. hiaticula, the sea lark of Ray, has a black breast, a white streak along the front, the top of the head is brown, and the legs and beak are reddish. They are found on the shores of Europe and America. 2. C. morinellus, the dotterel of Ray, has an iron-colored breast, a small white streak on the breast and eye-brows, and black legs. It is a native of Europe, and is found in the counties of Cambridge, Lincoln, and Derby. 3. C. œdicnemus, the stone curlew of Ray, is of a gray color, with two of the prime wing feathers black, but white in the middle; it has a sharp bill, and ash-colored feet, and is about the size of a crow. In Hampshire, Norfolk, and on Lincoln heath, it is called the stone curlew, from a similarity of colors to the curlew. It has a shrill voice, somewhat resembling that of the black woodpecker, which it raises and lowers successively, uttering agreeable notes. 4. C. pluvialis, the green plover of Ray, is black above, with green spots, white underneath, and the feet are ash-colored. It is a native of Europe. 5. C. Zelandicus, the New Zealand plover, has the fore part of the head, the eye, chin, and throat, black, passing backwards in a collar at the hind head; all the back part of the head, behind the eye, greenish ash-color; these two colors divided by white; the plumage on the upper parts of the body is the same color as the back of the head: the quills and tail are dusky: the last order of coverts is white for some part of their length, forming a bar on the wing: the under parts of the body are white, and the legs red. It inhabits Queen Charlotte's Sound; where it is known by the name of doodooroa attoo.

CHARASM, a fertile country of Asia, bounded on the north by Turkestan, east by Great Bucharia, south by Khorasan, and west by the Caspian Sea. It is divided among several Tartarian princes, of whom one takes the title of khan, with a sort of pre-eminence over the rest. See KHARASM.

CHARBON, in the menage, the little black spot or mark which remains after a large spot in the cavity of the corner teeth of a horse. About the seventh or eighth year, when the cavity fills up, the tooth being smooth and equal, it is said to be rased.

CHARCAS, or CHERCOS, a province or intendancy of the united provinces of South America, formerly included in the kingdom of Peru; and then, by the Spanish government, with the vice-royalty of Buenos Ayres. It is a mountainous region that has been little explored, but is described as bounded on the north by Peru, on the east by Brasil, and on the west by the great ridge of the Andes. It is nearly 900 miles in length; subject, in the mountains, to extreme cold, and to excessive heat in the plains.

CHARCOAL. See CARBON and GUNPOWDER.

CHARDIN (Sir John), a celebrated traveller, born at Paris in 1643. His father, who was a jeweller, had him educated in the Protestant religion: after which he travelled into Persia and India. He came to England subsequently to the revocation of the edict of Nantes, in 1685, and had the honor of knighthood conferred on him by Charles II. He died at London in 1713. His account of his travels is much esteemed.

CHARENTE, a department of France, bounded by those of the Deux Sevres and Vienne on the north; Upper Vienne on the east; Dordogne on the south; and Lower Charente on the west. It includes the ci-devant province of Angoumois. Angoulême is the capital. The air is generally warmer than at Paris, though the country is hilly. The soil produces abundance of wheat, rye, oats, Spanish corn, saffron, grapes, and all sorts of fruits. It has several iron mines, which yield a very good sort of iron. This province suffered severely during the civil wars in La Vendee.

Charente, Lower, a department of France, bounded by that of the Charente on the east; Gironde on the south; the Bay of Biscay on the west; the department of La Vendee on the north, and that of the Deux Sevres on the north-east. It consists of the ci-devant province of Aunis and Saintonge. Saintes is the capital.

Charente, a river of France, which rises in the department of the Dordogne, and after running through the two departments, to which it gives name, and passing by Angoulême, Saintes, and Rochefort, falls into theBay of Biscay, opposite to the isle of Oleron. It abounds with excellent fish, and often overflows its banks.

CHARENTON, a town of France, four miles south-east of Paris, seated on the Seine, near its confluence with the Marne. In this town the Protestants had their principal church, which was demolished upon the revocation of the edict of Nantes. Also a town of France, in the department of the Allier, the ci-devant province of Bourbonnois, seated on the Marmande.

CHARES the Lydian, a celebrated statuary, was the disciple of Lysippus, and the constructor of the famous colossus of the sun, in the city of Rhodes. Flourished 288 years before Christ.

CHARETTE (de la Contrie, F.A.), a celebrated French royalist, born in 1763. He was bred to the navy, and rose to the rank of lieutenant; but is chiefly famed as the leader of a party of royalists in La Vendee. He was defeated in February, 1796, and wounded in the head, besides having three fingers cut off with a sabre. He escaped from the field of battle, but in a short time after was taken in a wood, and carried to Nantes, where he was shot in March following. He refused to kneel, but laid open his breast, and, with a spirit undaunted, gave the signal for the soldiers to fire.

CHA'REY, *adj.*
Cha'rily, *adv.*
Cha'riness, *n.*
} Teut. *cherig*, *kareg*, *karg*. Careful, attentive, saving; caution; nicety; scrupulousness.

> What paper do you take up so *charily*? *Shakspeare.*

> I will consent to act any villany against him, that may not sully the *chariness* of your honesty. *Id.*

> The *chariest* maid is prodigal enough,
> If she unmask her beauty to the moon. *Id.*

CHARGE, *v. a.*, *v. n.*, & *n. s.*
Cha'rgeable, *adj.*
Cha'rgeableness, *n. s.*
Cha'rgeably, *adv.*
Cha'rgeful, *adj.*
Cha'rger, *n. s.*
} Lat. *curatio*. Care, trust, commission for a certain purpose. When synonymous with the Fr. *charge*, Ital. *carica*, *carca*, Span. *carga*, it means a load, weight, pressure, attack, imposition, expense, command. The verb is derived from this, and signifies to load, press upon, attack, onerate, impose, command; as also to entrust; to commission.

> And the captain of the guard *charged* Joseph with them, and he served them. *Genesis.*

> The priest shall *charge* her by an oath. *Numbers.*
> And his angels he *charged* with folly. *Job.*

> Hir dremes shul not now be told for me;
> Ful were hir hedes of fumositee,
> That causeth dreme of which ther is no *charge*.
> *Chaucer. The Squiere's Tale.*

> Fiercely at first those knights they did assayle,
> And drove them to recoile, but when againe
> They gave fresh *charge* their forces gan to fayle,
> Unable their encounter to sustaine. *Spenser.*

> Saul might even lawfully have offered to God, those reserved spoils, had not the Lord, in that particular case, given special *charge* to the contrary. *Hooker.*

> He procured it not with his money, but by his wisdom; not *chargeably* bought by him, but liberally given by others by his means. *Ascham.*

> Thou canst not, cardinal, devise a name
> So slight, unworthy, and ridiculous,
> To *charge* me to an answer as the pope.
> *Shakspeare.*

> ——— What a sigh is there. The heart is sorely *charged*. *Id.*

> Asses of great *charge*. *Id.*
> What you have *charged* me with, that I have done. *Id.*

> With his prepared sword he *charges* home
> My unprovided body, lanced my arm. *Id.*

> Here's the note
> How much your chain weighs to the utmost carat,
> The fineness of the gold, the *chargeful* fashion. *Id.*

> I may not suffer you to visit them;
> The king hath strictly *charged* the contrary. *Id.*

> Their neighing coursers daring of the spur,
> Their armed staves in *charge*, their beavers down. *Id.*

> Their *charge* was always born by the queen, and duly paid out of the exchequer.
> *Bacon's Advice to Villiers.*

> Honourable retreats are no ways inferior to brave *charges*; as having less of fortune, more of discipline, and as much of valour. *Id. War with Spain.*

> He who requires
> From us no other service, than to keep
> This one, this easy *charge*; of all the trees
> In Paradise, that bear delicious fruit
> So various, not to taste that only tree
> Of knowledge, planted by the tree of life.
> *Milton.*

> Why hast thou, Satan, broke the bounds prescribed
> To thy transgressions, and disturbed the *charge*
> Of others? *Id. Paradise Lost.*

> Nothing can be a reasonable ground of despising a man, but some fault or other *chargeable* upon him. *South.*

> They both accept the *charge* with me,
> To fight a battel from all gunshot free.
> *Marvell.*

The noble captain Antony,
Shall set thee on triumphant chariots,
And put garlands on thy head. *Shakespeare.*
He [illegible] him in Rome [illegible]
As in a [illegible]
Her [illegible]
Milton's Samson Agonistes.
All the [illegible]
With [illegible] of armour [illegible] a heap,
[illegible]
[illegible] *[illegible] Iliad.*
[illegible]
[illegible]
And [illegible]
[illegible] *Marvell.*
[illegible] the [illegible] handsome chariots,
[illegible] *Prior.*
[illegible] spirit in the [illegible] of the [illegible] *Addison.*
[illegible] a declining ray,
[illegible] the western way;
[illegible] search around,
[illegible] on the ground.
Gay's Rural Sports.

CHARIOTS, in antiquity, were chiefly used in war, and called bigæ, trigæ, &c. according to the number of horses applied to draw them. Every chariot carried two men, what [illegible] probably the [illegible] and the charioteer; and we read of several [illegible] of men and [illegible] employed in driving the chariot. Warriors in close fight, alighted out of the chariot, and fought on foot; but when they were weary, which often happened by reason of their armour, they retired into their chariots, and thence annoyed their enemies with darts and missive weapons. The covinus was a [illegible], and a very terrible instrument of destruction, being armed with sharp [illegible] and hooks for cutting and [illegible] all whom [illegible] within its reach. This kind was made very strong, and had [illegible] besides the charioteer, being designed to drive with great force and rapidity, and to do execution chiefly with its hooks and scythes. The essedum and [illegible] were also war chariots, probably of a larger size, and stronger made than the covinus, designed for containing a charioteer, and one or two warriors. The greatest number of the British war chariots seem to have been of this kind. Chariots were sometimes consecrated to the sun. The triumphal chariot was one of the principal ornaments of the Roman celebration of a victory.

CHARISIA, in antiquity, a wake, or night festival, instituted in honour of the Graces.

CHARITES, and Gratiæ, in heathen mythology, the three Graces; the daughters of Jupiter and Eurynome. Their names were Aglaia, Thalia, and Euphrosyne.

CHARITY. n. s. } Lat. *caritas*; Fr. *cha-*
CHA'RITABLE, adj. } *rité*; [illegible] Love; kind-
CHA'RITABLY, adv. } ness; benevolence. Its sweeter acceptation is almsgiving, or relief given to the poor.

Concerning *charity*, the final object whereof is that incomprehensible beauty which shineth in the countenance of Christ, the Son of the living God. *Hooker.*

There she awhile him stayes, himselfe to rest,
That to the rest more able he might bee;
During which time, in every good behest,
And godly worke of almes and *charitee*,
She him instructed with great industree. *Spenser.*

Z

We must incline to the king; I will look for him, and privily relieve him; go you and maintain talk with the duke, that my *charity* be not of him perceived. *Shakspeare.*

How had you been my friends else? Why have you that *charitable* title from thousands, did you not chiefly belong to my heart? *Id. Timon.*

Only add
Deeds to thy knowledge answerable; add faith,
Add virtue, patience, temperance; add love,
By name to come called *charity*, the soul
Of all the rest. *Milton.*

By thee,
Founded in reason, loyal, just, and pure,
Relations dear, and all the *charities*
Of father, son, and brother, first were known. *Id.*

He that hinders a *charitable* person from giving alms to a poor man, is tied to restitution, if he hindered him by fraud or violence. *Taylor's Holy Living.*

I never had the confidence to beg a *charity*. *Dryden.*

The heathen poet, in commending the *charity* of Dido to the Trojans, spoke like a Christian. *Id.*

My errours, I hope, are only those of *charity* to mankind; and such as my own *charity* had caused me to commit, that of others may more easily excuse. *Id.*

Charity, or a love of God which works by a love of our neighbour, is greater than faith or hope. *Atterbury.*

In faith and hope the world will disagree,
But all mankind's concern is *charity*. *Pope.*

Pleased with his guests the good man learned to glow,
And quite forgot their vices in their woe;
Careless their merits or their faults to scan,
His pity gave ere *charity* began. *Goldsmith.*

The societies which were instituted in the cities of the Roman empire were united only by the ties of faith and *charity*. *Gibbon.*

Charity, Feasts of. See Agape.

Charity of our Lady, in church history, a ci-devant religious order in France, established in the thirteenth century, which, though charity was the principal motive of their union, became so disorderly and irregular, that their order dwindled, and at last became extinct.

Charity of St. Hippolitus, a religious congregation, founded about the end of the fourteenth century, by one Bernardin Alvarez, a Mexican, in honor of St. Hippolitus, the martyr, patron of Mexico, and approved of by pope Gregory XIII.

Charity, Order of. There are several religious orders which bear this title; particularly one instituted by St. John de Dieu, for the assistance of the sick; approved of in 1520, by Leo X. and confirmed by Paul V. in 1617. They apply themselves wholly to the service of the diseased.

CHARK. See Char. To make charcoal.

Excess either with an apoplexy knocks a man on the head, or with a fever, like fire in a strong water shop, burns him down to the ground; or, if it flames not out, *charks* him to a coal. *Grew's Cosmologia Sacra.*

CHARKOV, or Kharkof, a town and government of Europe in Russia, standing on the rivers Charka and Lapan, which divide it into three parts. Here has long been a considerable monastic college, which, in 1803, was erected into a university; and the town contains ten churches, two convents, and 11,000 inhabitants. The houses are mostly of wood, and the place is very ill paved. Four great yearly fairs are held at Charkov. It is 350 miles south-west of Moscow, and 640 S.S.E. of Petersburg.

CHA'RLATAN, *n. s.*
Charlata'nical, *adj.*
Cha'rlatanry, *n. s.*
} Fr. *charlatan;* Ital. *ciarlatano;* a market crier, a quack; from *ciarlare;* Lat. *ciere.* A mountebank; an ignorant pretender to knowledge; one who wheedles and cheats.

For *charlatans* can do no good,
Until they're mounted in a crowd. *Hudibras.*

A cowardly soldier and a *charlatanical* doctor, are the principal subjects of comedy. *Cowley.*

CHARLEMONT (James Caulfield), Earl of, an Irish literary nobleman, patriot, and the friend of Burke, Flood, and other celebrated statesmen of the sister island; travelled when young, in France, Italy, Greece, and Asia Minor. On his return he took his seat in the Irish house of peers as baron Caulfield, and was raised in 1763 to the earldom of Charlemont. He is remarkable both for the firmness and mildness with which he acted as the commander of the armed volunteer association of Ireland, who, during the American war, obtained the relinquishment of all control over Ireland by the British legislature. He was president of the Royal Irish Academy; and died much esteemed and respected, in August, 1799, aged seventy. Letters highly honorable to this nobleman have appeared in a volume entitled, Original Letters, principally from lord Charlemont, Edmund Burke, &c. to the right hon. Henry Flood, 1820, 4to., and an interesting life of him, by Mr. Hardy.

Charlemont, a fortress on the frontiers of the Netherlands, and now belonging to that kingdom. It was ceded to France by the treaty of Nimeguen, and retained by that power till 1815, when it was given up to the sovereign of the Netherlands. While under the French dominion it formed part of the department of the Ardennes. It is about twenty-five miles south-west of Namur. Long. 4° 40′ E., lat. 50° 6′ N.

Charlemont, a town of Ireland, situated on the Blackwater, in the county of Armagh, about six miles south-east of Dungannon, and sixty-eight north-west of Dublin. Long. 6° 50′ W., lat. 50° 16′ N.

CHARLEROY, a strong town of the Netherlands, in the county of Namur. It is situated on the Sambre, eighteen miles west of Namur; and has often been taken and retaken in the wars of the Netherlands. At Ligny, near this town, Napoleon first attacked the Prussian line, just previous to the battle of Waterloo, defeated it, and compelled it to fall back to Wavres. Since the peace the fortifications have been repaired; and the town now contains 4000 inhabitants.

CHARLEMAGNE. See France.

CHARLES I. and II. See England.

Charles V. See Germany and Spain.

Charles IX. See France.

Charles XII. See Sweden.

Charles, a county of Maryland, on the western shore, bounded on the south and west into a university; and the town contains ten churches, two convents, and 11,000 inhabitants. The houses are mostly of wood, and the place is very ill paved. Four great yearly fairs are held at Charkov. It is 350 miles south-west of Moscow, and 640 S.S.E. of Petersburg.

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CHARLEMAGNE. See FRANCE.

CHARLES I. and II. See ENGLAND.

CHARLES V. See GERMANY and SPAIN.

CHARLES IX. See FRANCE.

CHARLES XII. See SWEDEN.

CHARLES, a county of Maryland, on the western shore, bounded on the south and west by the Potomac, which separates it from Virginia; on the north by Prince George's; on the east by the Patuxent, and on the south-east by St. Mary's. It is twenty-seven miles long, and equally broad. The lands in general are low and sandy, and produce tobacco, Indian corn, and potatoes. The chief town is Port Tobacco.

CHARLES, LAKE ST., a lake of Lower Canada, twelve miles north of Quebec. It is surrounded by most beautiful scenery, and extends about four miles in length, giving its source to a river of the same name, which is not above thirty yards wide at its mouth, and falls into the ocean near Quebec.

CHARLES, a river of Massachusetts, which flows from a spring near Hopkinton, in Worcester county, and falls into Boston harbour, between that city and Charlestown. It is navigable in boats for seven miles, up to Watertown. In its course through Newton township it has several romantic and picturesque waterfalls. Two bridges are erected over it. See CHARLESTON.

CHARLES, CAPE, a promontory of Virginia, on the north side of Chesapeake Bay. Long. 75° 30′ W., lat. 37° 12′ N.

CHARLES, CAPE, a promontory on the south-west part of the strait, entering Hudson's Bay, Long. 75° 15′ W., lat. 62° 10′ N.

CHARLES-CITY, a county in Virginia, thirty miles long, and nine broad. It is bounded on the north and east by the Chickahominy, which separates it from the counties of New Kent and James-city; on the south and west by James-river, and on the north-west by Henrico.

CHARLES'S WAIN, *n. s.* The northern constellation called the bear. '*Karl wagn*,' says Thomson, 'in the Gothic dialect, is supposed by some to be named after Thor, who was called karl; by others from Charlemagne.'

> There are seven stars in Ursa minor, and in *Charles's-wain*, or Plaustrum of Ursa major, seven.
> *Browne's Vulgar Errours.*

CHARLESTON, a district of the United States, in South Carolina, bounded on the north-east by that of George-town; on the north-west by Orangeburgh; on the south-west by Beaufort, and on the south-east by the ocean. Its form is oblong, being about sixty miles long and fifty-five broad. It is watered by the rivers Wando, Cooper, Ashley, Ponpon, Ashepoo, and Combahee. The soil near the rivers and on the coast is rich and well cultivated, producing large crops of Indian corn, rice, indigo, &c.

CHARLESTON, a handsome city in the above district, and the capital of the state, situated on the peninsula formed by the Ashley and the Cooper, which unite on the east side of it, fall into the ocean six miles east by south of it, and are navigable, for twenty miles above it. This city is built on a regular plan, consisting of parallel streets, which extend east and west from river to river, and are crossed by others at right angles. Their breadth is from thirty-five to sixty-six feet, and they are furnished with piazzas. The houses are mostly of brick and well built. The public buildings are a state-house, an exchange, an armoury, a college, several academies, an orphan-house, a poors'-house, a Jewish synagogue, and numerous other places of worship. The situation is healthy, and the neighbourhood very beautiful. The harbour is commodious, but a bar hinders vessels of more than 200 tons burden, loaded, from entering. The fortifications are strong, having Fort Mechanic on the south, Fort Pinckney on the east, Fort Moultrie on the southern part of Sullivan's Island, and Fort Johnson, about three miles to the south-east. Charleston carries on almost the entire trade of the state, and is the fourth commercial town in the Union. It was incorporated in 1783, and divided into thirteen wards, each of which chooses a warden, and from these the citizens elect an intendant. The intendant and wardens form the city council. A federal circuit court is held in it on the 25th of October, and a district court quarterly, on Monday. It has often suffered from fire. This city lies 119 miles north-east of Savannah, 376 from Edington, 540 from Richmond, 644 from Baltimore, and 746 south-west by south of Philadelphia.

CHARLESTON, a handsome town of Massachusetts, and the largest in Middlesex county. It is seated on a peninsula formed by the river Mystic on the north, and a bay of Charles River on the south-west. It is separated from Boston by the Charles, over which a bridge was erected in 1787, supported by seventy-five wooden piers, with a draw-bridge in the middle for the passage of vessels. Charleston is connected with Malden by another bridge, erected in 1788. This town was burnt in 1775 by general Gage, when houses and property were destroyed to the amount of £136,900, but it has revived of late, and contains about 2000 inhabitants. They manufacture pot and pearl-ashes, rum, brass, pewter, leather, &c., and a small ship-building trade is carried on.

CHARLESTON, a post town of Maryland, on the eastern shore, in Cecil county, west of the river North East, four miles from the head of Chesapeake Bay. It is chiefly inhabited by persons engaged in the herring fishery. It is ten miles west-south-west of Elkton, and fifty-nine south-west by west of Philadelphia. Several other towns of the United States bear the same name.

CHARLESTON, one of the four principal towns of Barbadoes.

CHARLESTOWN, the only town in the isle of Nevis. On the south side of it there is a large spot of sulphureous ground, at a chasm called Sulphur Gut, the heat of which is so great as to be felt through the soles of one's shoes. A pond a quarter of a mile from the town is milk warm, and has excellent fish. Here are many good houses and shops.

CHARLEVILLE, a town of France, the head of a canton in the department of Ardennes. The streets are straight, and the houses of equal height. It has a magnificent square, with a fountain in the centre. It is seated on the Meuse, near Mezieres, to which it is connected by a bridge and causeway: fifteen miles north-west of Sedan, and 140 north-east of Paris. Population 7700.

CHARLOCK, *n. s.* A weed growing among

the corn with a yellow flower. It is a species of mithridate mustard.

CHARLOTTE, a populous and fertile county of Virginia, bounded by Campbell county on the west, Prince Edward and Buckingham on the north, Mecklenburgh on the south-east, and Halifax and Pennsylvania counties on the south.

CHARLOTTE TOWN, the capital of Dominica, formerly called Rosseau. It stands on a point of land on the south-west side of the island, which forms two bays, and is twenty-one miles south-east of Prince Rupert's Bay.

CHARLOTTENBURG, a town of the electorate of Brandenburgh, in the Middle Mark, with a royal palace and magnificent gardens. It was built by Sophia Charlotte, the first queen of Prussia, and is situated on the river Spree, four miles east-south-east of Berlin. Population 2350.

CHARM, *n. s.* & *v. a.*
CHA'RMED, *adj.*
CHA'RMER, *n. s.*
CHA'RMERESS, *n. s.*
CHA'RMING, *part. adj.*
CHA'RMINGLY, *adv.*
CHA'RMINGNESS, *n. s.*

Fr. *charme*, from Lat. *carmen*. Words, or philtres, or characters, imagined to have some occult or unintelligible power. Something of power to subdue opposition, and gain the affections; to summon by incantation; to subdue by some secret power; to amaze; to overpower: one that has the power of charms or enchantments; a word of endearment between lovers; pleasing in the highest degree; the power of pleasing in the highest degree.

There sawe I, playing, jogèlours;
Magicians and tragètours;
And phitonesses, *charmeresses*,
And olde witches, and sorceresses
That usen exorsiasions
And eke subfumigacions.
Chaucer's House of Fame.

I never knew a woman so dote upon a man; surely I think you have *charms*.——Not I, I assure thee; setting the attractions of my good parts aside, I have no other *charms*. *Shakspeare.*

That handkerchief
Did an Egyptian to my mother give;
She was a *charmer*, and could almost read
The thoughts of people. *Id.*

I, in mine own woe *charmed*,
Could not find death, where I did hear him groan;
Nor feel him where he struck. *Id.*

Let fall thy blade on vulnerable crests;
I bear a *charmed* life, which must not yield
To one of woman born. *Id.*

Upon my knees
I *charm* you by my once commended beauty,
By all your vows of love, and that great vow
Which did incorporate and make us one. *Id.*

'Tis your graces
That from my mutest conscience to my tongue
Charms this report out. *Id.*

Arcadia was the *charmed* circle, where all his spirits for ever should be enchanted. *Sidney.*

We implore thy powerful hand,
To undo the *charmed* band
Of true virgin here distressed. *Milton.*

By slain beasts' entrails, and fowls' marked flight,
Thereto he tempests raised by many a spright,
And *charmed* the sun and moon, and changed the day
and night. *Fletcher's Purple Island.*

To famed Apelles when young Ammon brought
The darling idol of his captive heart;
And the pleased nymph with kind attention sat,
To have her *charms* recorded by his art. *Waller.*

The passion you pretended,
Was only to obtain;
But when the *charm* is ended,
The *charmer* you disdain. *Dryden.*

She smiled very *charmingly*, and discovered as fine a set of teeth as ever eye beheld. *Addison.*

Oh! who the exquisite delight can tell,
The joy which mutual confidence imparts!
Or who can paint the *charm* unspeakable
Which links in tender bands two faithful hearts!
Mrs. Tighe's Psyche.

CHA'RNEL, *adj.*
CHA'RNEL-HOUSE, *n. s.*

Fr. *charnier*; Lat. *carnarium*; from *caro, carnis*. *Carnarium* was supposed to be originally *cranarium*, a place of skulls. Containing flesh or carcases; a cemetery; a vault, in which dead bodies are deposited.

If *charnel-houses* and our graves must send
Those that we bury, back; our monuments
Shall be the maws of kites. *Shakspeare.*

When they were in those *charnel-houses*, every one was placed in order, and a black pillar or coffin set by him. *Taylor.*

Such are those thick and gloomy shadows damp,
Oft found in *charnel* vaults and sepulchres
Lingering, and sitting by a new-made grave. *Milton.*

CHARNEL HOUSES were anciently a kind of galleries, usually in or near a church-yard, over which were laid the bones of the dead, after the flesh was wholly consumed. Charnel houses are now usually adjoining to the church.

CHARON, in fabulous history, the son of Erebus and Nox, whose office was to ferry the souls of the deceased over the waters of Styx and Acheron, to the infernal regions. See STYX.

CHARPENTIER (Francis), dean of the French Academy, was born in 1620. M. Colbert made use of his abilities in establishing his Academy of Medals and Inscriptions; and no person of that learned society contributed more towards that superb series of medals, which were struck on the events that distinguished the reign of Louis XIV. He published, 1. The Life of Socrates, 1650. 2, 3. Translations of Xenophon's Memorabilia and Cyropædia, 1558. 4. An Account of the French East India Company, 1665. And, 5, 6. Two works on the Excellency of the French Language; with some other pieces. He died in 1702, aged eighty-two.

CHART, *n. s.* Lat. *charta*. A delineation or map of coasts, for the use of sailors. It is distinguished from a map, by representing only the coasts

The Portuguese, when they had doubled the Cape of Good Hope, found skilful pilots using astronomical instruments, geographical *charts*, and compasses. *Arbuthnot.*

CHART, or SEA CHART, in hydrography, is a projection of some part of the earth's superfices in plano. Sea charts differ very considerably from geographical or land maps, which are of no use in navigation. They are of different kinds; such as,

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CHART, GLOBULAR, a meridional projection wherein the distance of the eye from the plane of

the meridian, upon which the projection is made, is supposed to be equal to the line of the angle 45°. This projection comes the nearest of all to the nature of the globe, because the meridians therein are placed at equal distances; the parallels also are nearly equidistant, and consequently the several parts of the earth have their proper proportion of magnitude, distance, and situation, nearly the same as on the globe itself. See GLOBULAR PROJECTION.

CHART, HYDROGRAPHIC, a sheet of large paper, whereon several parts of the land and sea are described, with their respective coasts, harbours, sounds, flats, rocks, shelves, sands, &c. together with the longitude and latitude of each place, and the points of the compass.

CHART, MERCATOR'S, is that where the meridians are straight lines, parallel to each other, and equidistant; the parallels are also straight lines, and parallel to each other: but the distance between them increases from the equinoctial towards either pole, in the ratio of the secant of the latitude to the radius. Suppose the superficies of the terrestrial globe to be taken off, and extended on a plane, so as to make the meridians parallel to each other, and the degrees of longitude everywhere equal, it is easy to conceive that it must be productive of the most palpable errors; for an island in latitude 60°, where the radius of the parallel is only equal to one half of the radius of the equator, will have its length from east to west distorted in a double ratio to what it was on the globe; i. e. its length from east to west compared with its breadth from north to south will appear in a double proportion to what it is in reality: so that, in whatever proportion the degrees of any parallel are increased or diminished by a projection in plano, the degrees of longitude ought to be increased or diminished in the same ratio; otherwise the true bearings of places will be lost, as in the case of the plane chart, where the degrees of latitude and longitude are all equal. Although this projection is commonly called Mercator's projection, yet our countryman, Mr. Wright, had long before demonstrated its use, and shown a ready way of constructing it, by enlarging the meridian line, by a continued addition of secants. See NAVIGATION.

CHART, PLANE, is a representation of some small part of the earth only, or of some particular place, without regard to its relative situation.

CHA'RTER, *n. s.* } Lat. *charta*. Any
CHA'RTER-PARTY, *n. s.* } writing bestowing
CHA'RTERED, *adj.* } privileges or rights.
Privilege; immunity; exemption; invested with privileges by charter; privileged. Charter-party, Fr. *chartre partie*. A paper relating to a contract, of which each party has a copy.

A conference between the king [John] and the barons was appointed at Runnemede, between Windsor and Staines; a place which has ever since been extremely celebrated on account of this great event. The two parties encamped apart, like open enemies; and, after a debate of a few days, the king, on the 19th June, with a facility somewhat suspicious, signed and sealed the *charter* which was required of him. This famous deed, commonly called the *Great Charter*, either granted or secured very importan liberties and privileges to every order of men in the kingdom; to the clergy, to the barons, and to the people. *Hume's History of England.*

I must have liberty
Withal as large a *charter* as the wind,
To blow on whom I please; for so fools have;
And they that are most galled with my folly,
They most must laugh. *Shakspeare.*

When he speaks
The air, a *chartered* libertine, is still. *Id.*

It is not to be wondered that the great *charter* whereby God bestowed the whole earth upon Adam, and confirmed it unto the sons of Noah, being as brief in word as large in effect, hath bred much quarrel of interpretation. *Raleigh's Essays.*

Here was that *charter* sealed, wherein the crown
All marks of arbitrary power lays down. *Denham.*

God renewed this *charter* of man's sovereignty over the creatures. *South.*

CHARTA, χαρτης, originally signifies a sort of paper made of the plant papyrus or biblus. See PAPER. The word is also used in our ancient customs for a charter, or deed in writing. See CHARTER.

CHARTA EMPORETICA, in pharmacy, &c. a kind of paper made very soft and porous, used for the purpose of filtering.

CHARTA MAGNA. See MAGNA CHARTA.

CHARTER-PARTY, Fr. chartre-partie, is an instrument of freightage, or articles of agreement made between merchants and sea-faring men, concerning their merchandise and maritime affairs. The charter-party must be in writing; and be signed both by the proprietor or the master of the ship, and the merchant who freights it. It should contain the name and the burden of the vessel; the names of the master and the freighter; the rate of freight; and the time of loading and unloading; and the other conditions agreed on. It is properly a deed, whereby the master or proprietor of the vessel engages to furnish immediately a sound vessel well equipped, caulked, and stopped, provided with anchors, sails, cordage, and all other furniture to make the voyage required, as equipage, hands, victuals, and other munitions; in consideration of a certain sum to be paid by the merchant for the freight. Lastly, the ship with all its furniture, and the cargo, are respectively subjected to the conditions of the charter-party. The charter-party differs from a bill of lading, in that the first is for the entire freight, both going and returning; whereas the latter is only for a part of the freight, or at most only for the voyage one way.

CHARTOPHYLAX, an officer of the church of Constantinople, who, when the sacrament is administered, gives notice to the priests to come to the table. He represents the patriarch upon the bench, tries all ecclesiastical causes, keeps the marriage registers, assists at the consecration of bishops, and presents the bishop elect, and all other subordinate clergy.

CHARTRES, an ancient and large town of France, in the department of the Eure and Loire, and the see of a bishop. Its ancient name was Autricum, and Carnutes. Its principal trade is in corn, wine, and some few manufactured goods. The cathedral is one of the finest in France, and its steeple is much admired. It is seated on the Eure, over which is a bridge built by Vauban. It was the birthplace of Nicole the moralist, the poet Regnier, and Brissot. Forty-five miles south-west of Paris. Long. 1° 34' E., lat. 48° 27' N.

CHARTREUSE, or the GRAND CHARTREUSE, a late celebrated monastery, the capital of all the convents of the Carthusian monks, about seven miles north-east of Grenoble, in the ci-devant province of Dauphiné, now in the department of the Isere. The situation of this place has been much admired and celebrated, being one of the most romantic and beautiful scenes to be seen in the whole range of the Alps. From Echelles, a little village in the mountains of Savoy, to the Chartreuse, which is built on a mountain of the same name, the distance is six miles. Along this course, the road runs winding up, for the most part not six feet broad. On one hand is the rock with woods of pine tree hanging over head; on the other a prodigious precipice almost perpendicular; at the bottom of which rolls a torrent, that sometimes tumbling among the fragments of stone which have fallen from on high, and sometimes precipitating itself down vast descents with a noise like thunder, rendered yet more tremendous by the echo from the mountains on each side, concurs to form one of the most solemn, the most romantic, and most astonishing scenes in nature.

CHARTREUSE of London, corruptly called the Charter-house, took its name from the Grand Chartreuse, but is now converted into an hospital, and endowed with a noble revenue. Here are maintained eighty decayed gentlemen, not under fifty years of age: and forty boys are educated and fitted either for the university or trades. Those sent to the university have an exhibition of £20 a year for eight years; and have an immediate title to nine church livings in the gift of the governors of the hospital, who are sixteen in number, all persons of the first distinction, and taking their turns in the nomination of pensioners and scholars For a description of the new and excellent method of discipline, adopted by the school of this foundation, see EDUCATION.

CHARYBDIS, in ancient geography, a famous whirlpool in the strait of Messina, lying between Calabria in Italy and the island of Sicily, opposite to Scylla, a dangerous rock on the coast of Italy, against which mariners were often dashed in endeavouring to avoid Charybdis; whence the Latin adage,

> Incidit in Scyllam qui vult vitare Charybdin.

This whirlpool is said to have been much affected by the dreadful earthquake in 1783. It is now called Calofaro and Larema.

CHASE, *v. a.* & *n. s.* } The substantive agrees
CHA'SER, *n. s.* } with the Isl. and Swed. *kas*; Fr. *chace*; Ital. *caccia*; Teut. *jeichen, jagen*, to drive, to pursue, to hunt. Thus the verb signifies to hunt; to pursue as an enemy; to drive away; to follow as a thing desirable; to drive. The substantive chaser, is sometimes used for enchaser, a chaser of metals.

> And Abimelech *chased* him, and he fled before him. *Judges.*

> It shall be as the *chased* roe. *Isaiah.*

> ——————— Upon a day
> As she the woodes with bow and shaftes did raunge,
> The hartlesse hynde and roebuck to dismay,
> Dan Faunus chaunst to meet her by the way,
> And kindling fire at her faire-burning eye,
> Inflamed was to follow beauties *chace*;
> And *chaced* her, that fast from him did fly;
> As hynd from her, so she fled from her enemy.
> *Spenser.*

> She, seeing the towering of her pursued *chace*, went circling about, rising so with the less sense of rising. *Sidney*

> Whilst he was hastening in the *chase*, it seems,
> Of this fair couple, meets he on the way
> The father of this seeming lady. *Shakspeare.*

> A maid I am, and of thy virgin train;
> Oh! let me still that spotless name retain,
> Frequent the forests, thy chaste will obey,
> And only make the beasts of *chase* my prey.
> *Dryden.*

> When the following morn had *chased* away
> The flying stars, and light restored the day. *Id.*

> Yet this mad *chase* of fame, by few pursued,
> Has drawn destruction on the multitude.
> *Id. Juvenal.*

> They seek that joy, which used to glow
> Expanded on the hero's face,
> When the thick squadrons prest the foe
> And William led the glorious *chase*. *Prior.*

> Stretched on the lawn, his second hope survey,
> At once the *chaser*, and at once the prey!
> Lo, Rufus, tugging at the deadly dart,
> Bleeds in the forest like a wounded hart. *Pope.*

> Let the keen hunter from the *chase* refrain,
> Nor render all the ploughman's labour vain
> When Ceres pours out plenty from her horn,
> And clothes the fields with golden ears of corn.
> *Gay's Rural Sports.*

CHASES, or CHACES, want courts of attachment, swainmote, and justice-seat. See FOREST. Crompton observes that a forest cannot be in the hands of a subject, but it forthwith loses its name, and becomes a chase; as all those courts lose their nature when they come into the hands of a subject; and that none but a king can make a lord chief justice in eyre of the forest. See JUSTICE IN EYRE.

CHASING, in sculpture, the art of embossing on metals. This is the art of representing figures, &c. in a kind of bassi relievi, which is punched out from behind, and sculptured on the front with small chisels and gravers. See ENCHASING.

CHASM, *n. s.* Χασμα. A breach unclosed; a cleft; a gap; an opening. A place unfilled; a vacuity.

> Some lazy ages, lost in ease,
> No action leave to busy chronicles;
> Such, whose supine felicity but makes
> In story *chasms*, in epochas mistakes. *Dryden.*

> In all that visible corporeal world, we see no *chasms* or gaps. *Locke.*

> The ground adust her riven mouth disparts;
> Horrible *chasm*! profound. *Philips.*

CHA'SSELAS, *n. s.* French. A sort of grape.

CHA'STEN, *v. a.* } Fr. *chastier, chasti-*
CHASTI'SE, *v. a.* } *ment*; Lat. *castigo*. To
CHASTI'SEMENT, *n. s.* } afflict for faults; to cor-
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Fr. *chastier*, *chastiment*; Lat. *castigo*. To afflict for faults; to correct by severe treatment; but distinguished ... suffering inflicted by justice, ... from that which is penal.

Chasten thy son while there is hope, and let not thy soul spare for his crying. *Proverbs.*

But who so woll *chastise* me,
Anone my love yloste hath he;
For I love no man, in no gise,
That woll me reprove or *chastise*.
But I woll all folk undertake,
And of no wight no teching take;
For I that other folk *chastie*,
Woll not be taught fro my folie.
Chaucer's Romaunt of the Rose.

My breast I'll burst with straining of my courage,
But I will *chastise* this high-minded strumpet.
Shakspeare.

Shall I so much dishonour my fair stars,
On equal terms to give him *chastisement*. *Id.*

He held the *chastisement* of one, which molested the see of Rome, pleasing to God. *Raleigh's Essays.*

I follow thee, safe guide! the path
Thou leadest me! and to the hand of heaven submit,
However *chastening*. *Milton's Paradise Lost.*

I am glad to see the vanity or envy of the canting chymists thus discovered and *chastised*. *Boyle.*

Like you, commissioned to *chastise* and bless,
He must avenge the world, and give it peace. *Prior.*

Some feel the rod,
And own, like us, the father's *chastening* hand.
Rowe.

The gay social sense
By decency *chastised*. *Thomson.*

He had been tempted—*chastened*—and the chain
Yet on his arms, might ever there remain.
Byron's Corsair.

CHASTITY, *n. s.*
CHASTE, *adj.*
CHA'STELY, *adv.*
CHA'STENESS, *n. s.*
Lat. *castitas*, *castus*; Fr. *chaste*. Purity; freedom from obscurity; freedom from bad mixture of any kind. Purity of the marriage bed. Purity of language opposed to barbarisms; without contamination.

Love your children; be discreet; *chaste*, keepers at home. *Titus.*

Now as to the outragious array of women, God wote, that though the visiges of som of hem semen ful *chaste* and debonaire, yet notifien they in hir array of attire, likerousnesse and pride.
Chaucer's Canterbury Tales.

It is *chaste* and pure as purest snow,
Ne lets her waves with any filth be dyde;
But ever, like herself, unstayned hath been tryde.
Spenser.

You should not pass here; no, though it were as virtuous to lie as to live *chastely*. *Shakspeare.*

Who can be bound by any solemn vow
To force a spotless virgin's *chastity*. *Id.*

There is not *chastity* enough in language,
Without offence to utter them. *Id. Much Ado.*

Chastity is either abstinence or continence: abstinence is that of virgins or widows: continence, of married persons: chaste marriages are honourable and pleasing to God. *Taylor.*

And our *chaste* lamps we hourly trim,
Lest the great bridegroom find them dim. *Marvell.*

Succession of a long descent,
Which *chastely* in the channels ran,
And from our demi-gods began. *Dryden.*

Even here, where frozen *chastity* retires,
Love finds an altar for forbidden fires. *Pope.*

Among words which signify the same principal ideas, some are clean and decent, others unclean; some *chaste*, others obscene. *Watts's Logic.*

The *chaste* severity of the fathers, in whatever related to the commerce of the two sexes, flowed from the same principle; their abhorrence of every enjoyment which might gratify the sensual, and degrade the spiritual, nature of man. *Gibbon.*

CHASTITY, LAWS RESPECTING. The Roman law justifies homicide in defence of the chastity either of one's self or relations; and so also stood the law in the Jewish republic. Our law likewise justifies a woman for killing a man who attempts to ravish her. Even the husband or father may kill a man who attempts a rape upon his wife or daughter; but not if he takes them in adultery by consent: for the one is forcible and felonious, but not the other.

CHAT, *v. n.*, *v. a.*, & *n. s.*
CHA'TTER, *v. n.* & *n. s.*
CHA'TTERER, *n. s.*
From Fr. *caqueter*, Skinner; Isl. *kuttra*, Dan. *jaddera*; perhaps from *achat*, purchase or cheapening, on account of the prate naturally produced in a bargain; or only, as it is most likely, contracted from chatter. To prate; to talk idly; to prattle; to cackle; to converse at ease. Idle talk; prate; slight or negligent tattle. Chatter is derived from the same etymon, and differs very little in meaning from chat. It signifies to talk idly or carelessly; to make a noise as a pie, or other unharmonious bird; to make a noise by collision of the teeth.

Nightingales seldom sing, the pie still *chattereth*.
Sidney.

So doth the cuckow, when the mavis sings,
Begin his witless note apace to *chatter*. *Spenser.*

Lords, that can prate
As amply and unnecessarily
As this Gonzalo, I myself would make
A chough of as deep *chat*. *Shakspeare.*

Your prattling nurse
Into a rapture lets her baby cry,
While she *chats* him. *Id.*

Because that I familiarly sometimes
Do use you for my fool, and *chat* with you,
Your sauciness will jest upon my love. *Id.*

The shepherds on the lawn
Sat simply *chatting* in a rustick row. *Milton.*

With much good-will the motion was embraced,
To *chat* awhile on their adventures passed. *Dryden.*

Your birds of knowledge, that in dusky air
Chatter futurity. *Id.*

The time between before the fire they sat,
And shortened the delay by pleasing *chat*. *Id*

Stood Theodore surprised in deadly fright,
With *chattering* teeth, and bristling hair upright. *Id.*

Dip but your toes into cold water,
Their correspondent teeth will *chatter*. *Prior.*

The least is good, far greater than the tickling of his palate with a glass of wine, or the idle *chat* of a soaking club. *Locke.*

Come sit by my side while this picture I draw;
In *chattering* a magpie, in pride a jackdaw;
A temper the devil himself could not bridle,
Impertinent mixture of busy and idle. *Swift.*

I am a member of a female society who call ourselves the *chit-chat* club, and am ordered by the whole sisterhood to congratulate you upon the use of your tongue. *Spectator.*

The birds,————
Assembled on affairs of love,
And with much twitter and much *chatter*
Began to agitate the matter. *Cowper.*

CHAT, *n. s.* The keys of trees are called chats; as, ash chats.

Chat, in the cannon foundry, an instrument used in the examination of ordnance; consisting of a piece of iron fastened to a wooden shaft, and having three prongs, which, being introduced into the bore of the gun, show whether it be honey-combed, damaged, or otherwise defective. There is an improvement on this, having a spring so contrived that the least cavity releases the spring, and by means of a catch instantly betrays the defect.

CHATEAU-Cambresis, or Cateau-Cambresis, in the department of the North, and late province of Cambresis. It has a magnificent palace, which belonged to the ci-devant archiepiscopal see of Cambray; and is famous for the treaty concluded between Henry II. of France, and Philip II. of Spain. It also had, before the Revolution, a noble Benedictine abbey, now suppressed. It is seated on the Seille, fifteen miles south-east of Cambray.

Chateau-Dauphin, a very strong castle of Piedmont, in the marquisate of Saluces, belonging to the king of Sardinia. It was taken by the combined army of France and Spain in 1744, and restored by the treaty of Aix-la-Chapelle.

Chateau du Loire, a town of France, in the department of the Sarte, and ci-devant province of Maine, famous for sustaining a siege of seven years against Herbert count of Mans. It is seated on the Loire, twenty-two miles south-east of Mans, and ninety-seven west of Paris. Many small towns in France have the prefix, Chateau.

Chateauroux, a large town of France, capital of the department of the Indre, and ci-devant province of Berry. It has a considerable woollen manufacture, and is seated in a very pleasant plain on the Indre, fifteen miles south-west of Issoudun, and 150 south-west of Paris. Population 8500.

Chatel (Peter du), in Latin, Castellanus, a learned French divine, born at Arc, and educated at Dijon. He assisted Erasmus in his translations from the Greek, and became corrector of the press in Frobenius's office at Basil. Henry II. translated him to Orleans, where he died in 1552.

CHATELET, the name of certain ci-devant courts of justice in France. The grand chatelet at Paris was the place where the presidial or ordinary court of justice of the provost of Paris was held; and consisted of presidial, a civil chamber, a criminal chamber, and a chamber of policy.

CHATELLANY, *n. s.* Fr. *châtelenie*. The district under the dominion of a castle.

> Here are about twenty towns and forts of great importance, with their *chatellanies* and dependencies.
> *Dryden.*

CHATELLERAULT, a town of France, in the department of the Vienne, and late province of Poitou; seated in a fertile and pleasant country, on the river Vienne, over which is a handsome stone bridge. It is noted for its cutlery, watch-making, cloth, and the cutting of false diamonds. It is twenty-two miles north-east of Poitiers, and 168 south-west of Paris.

CHATHAM, called in Domesday book Cetcham, an important market town of Kent, adjoining the east side of the city of Rochester, on the Medway. It is one of the principal stations of the royal navy; the yards and magazines, of which there are whole streets, being furnished with all kinds of stores, and materials for building, rigging, and repairing the largest vessels The entrance into the Medway is defended by Sheerness and other forts; notwithstanding which the Dutch burnt several ships of war here in the reign of Charles II. The dock-yard and ordnance-wharf are, together, about a mile in length; some of the store rooms are near 700 feet long, and the sail loft is 209 feet. Twenty smiths' forges are often at work, and some of the anchors made here weigh between four and five tons. The new rope-house is 1140 feet in length, in which cables are made 120 fathoms long and twenty-two inches in circumference. In the yard are four docks for repairing, and six slips for building vessels. The unfortunate Royal-George, the Victory, and the Royal-Charlotte, three of the largest ships in the navy, were built here. There is in this town a complete set of block machinery similar to that of Portsmorth. The victualling office, a neat and convenient building, stands at the entrance of the town.

The chest of Chatham, instituted in 1553, by the seamen in the service of queen Elizabeth, for the relief of the sufferers in the defeat of the Spanish armada, was moved to Greenwich in 1802, and placed under the direction of the first lord of the admiralty. But here is an hospital for decayed mariners and shipwrights, and their widows, from which the pensioners have eight shillings and their widows seven shilling per week, and a quarter of a chaldron of coals yearly, no person being eligible who has not been maimed or disabled, or otherwise brought to poverty in the royal navy. Twenty-six governors preside over the institution, four of whom are elective; and the others are governors by virtue of their respective offices, viz. the archbishop of Canterbury, the bishop of Rochester, the lord high admiral, the lord-warden of the Cinque-ports, the dean of Rochester, the treasurer, comptroller, surveyor and clerk of the acts, six principal master mariners, two principal shipwrights, the master and warden of the Trinity-house, the commissioner, the two master-attendants, and the master-shipwright of Chatham dock-yard. This hospital, called Sir John Hawkins's, has lately been rebuilt.

In 1757 the present *lines* were commenced under the direction of William, duke of Cumberland, and much enlarged during the late war. Chatham is thirty-one miles E. S. E. of London. The population in 1821 was 15,268.

Chatham, a well-cultivated county of North Carolina, in Hillsborough district, bounded on the west by Randolph, north by Orange, east by Wake, and south by Cumberland and Moore counties. It is watered by the north-west branch of Cape Fear River. It abounds in iron ore, which is manufactured into iron at Fish-creek. The chief town is Pitsburg.

Chatham Island, an island in the South Pacific, discovered by Lieutenant Broughton in 1791, but hitherto little explored. Near the coast it is woody and well furnished with harbours: fish and the feathered tribes are numerous, and the latter remarkably tame. The inhabitants are copper-colored and very wild. Lat.

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of the north point 43° 43′ S, long. 183 2′ E. Also an island in the South Pacific, supposed by the officers of the Pandora to be twice as large as Otaheite. The natives spoke of a large river in the interior, which empties itself into a spacious bay. They traded in an unusually fair way.

CHATHAM STRAIT, a channel on the west coast of North America, which divides King George the Third's Archipelago from Admiralty Island. It is about 100 miles in length from north to south; and was found by Vancouver very abundant in sea-otters.

CHATTEL, *n. s.* See CATTLE. Any moveable possession; a term scarce used but in forms of law.

> Nay, look not big, nor stamp, nor stare, nor fret;
> I will be master of what is mine own;
> She is my goods, my *chattels*. *Shakspeare.*
>
> Honour's a lease for lives to come,
> And cannot be extended from
> The legal tenant; 'tis a *chattle*
> Not to be forfeited in battle. *Hudibras.*

CHATTERPOOR, an ancient city of Hindostan, so named from its founder, the rajah Chattersal, in the district of Bundelcund and province of Allahabad. It is situated not far from the famous Pinnah diamond mines, and was formerly a flourishing entrepot for the trade between the Deccan and Benares. It was obtained by the British at the close of the last Mahratta war; and is 237 miles from Benares, 698 from Calcutta, and 247 from Bombay.

CHATTERTON (Thomas), an English poet, whose fate and performances excited some years ago, in no small degree, the public attention, and gave rise to much controversy. He was born at Bristol, November 20th, 1752; and educated at a charity school on St. Augustin's Back, where nothing more was taught than reading, writing, and arithmetic. At fourteen years of age, he was articled clerk to an attorney at Bristol, with whom he continued about three years. Though his education was thus confined, he discovered an early turn for poetry, English antiquities, and heraldry. In April, 1770, he left Bristol, disgusted with his profession, and came to London in hopes of advancing his fortune by his pen. Having written something in praise of Beckford, the lord mayor, he had the honor of being presented to his lordship; and observes, respecting his reception, 'there is no money to be got on this side of the question. However, he is a poor author who cannot write on both sides. Essays on the patriotic side will fetch no more than what the copy is sold for. As the patriots themselves are searching for places, they have no gratuity to spare. On the other hand unpopular essays will not even be accepted, and you must pay to have them printed; but then you seldom lose by it, as courtiers are so sensible of their deficiency in merit, that they generously reward all who know how to daub them with the appearance of it.' He continued to write incessantly in various periodical publications. But all these exertions of his genius brought in so little money, that he was soon reduced to the extremest indigence: and at last, oppressed with poverty and disease, he in a fit of despair, put an end to his existence by taking poison, August, 1770. In 1777 were published in 1 vol. 8vo., Poems supposed to have been written at Bristol, by Thomas Rowley and others, in the fifteenth century, the greatest part now first published from the most authentic copies, with an engraved specimen of one of the MSS.: to which are added a Preface, an Introductory Account of the several Pieces, and a Glossary. And in 1778 were published in one vol. 8vo., Miscellanies in Prose and Verse, by Thomas Chatterton, supposed author of the Poems published under the names of Rowley, &c. Dr. Watkins, in his Memoir of Chatterton, says, What has given celebrity to his name, is the real or pretended discovery of poems, written in the fifteenth century, by Thomas Rowley, a priest of Bristol, and others, in Redcliffe church, of which Chatterton's ancestors had been sextons near a century and a half. His father certainly removed a number of parchments from an old chest in that church, most of which were used in covering books. Young Chatterton, from the perusal of some of them, is supposed to have formed the design of a literary forgery. A sharp controversy was carried on for some time on that point, between Mr. Warton, Mr. Bryant, Mr. Matthias, and others; and the poems are now generally considered as Chatterton's own productions. A new edition of his works was published by Mr. Southey, in 3 vols. 8vo.

CHATSWORTH, a villa on the peak of Derby, a magnificent seat of the duke of Devonshire. It is seated on the Derwent, and built of stone dug on the spot; being six miles from Chesterfield, and 141 from London. It was here that Mary, queen of Scots, was imprisoned seventeen years, in memory of which part of the building is called the Queen of Scots' Apartments. Its gardens and park occupy an extent of nine miles in circumference.

CHAVARIGHTS, or CHAVARITES, a sect of Mahommedans, who deny that God ever sent a prophet that was infallible, with a commission to give a law to mankind. They say, that if such an office were necessary, it would not be confined to a single family, but that every man of probity and virtue would be capable of that honor.

CHAUCER (Sir Geoffrey), the father of English poetry, in the fourteenth century, was born in London in 1328. After he left the university he travelled into Holland, France and other countries. Upon his return he entered himself in the Inner Temple, where he studied the law. His first station at court was that of page to Edward III. from whom he had a pension. Soon after, he was made gentleman of the king's privy chamber, and shield-bearer to the king. He spent his younger days in a constant attendance at court, or for the most part living near it, in a square stone house, near the park gate at Woodstock, still called Chaucer's House. Being patronised by the duke of Lancaster, he was sent in 1373 to the republic of Genoa, to hire ships for the king's navy; and the king was so well satisfied with his negociations, that on his return he obtained a grant of a pitcher of wine daily in the port of London, to be delivered by the butler of England; and soon after was made comptroller of the customs for wool, wool-fells, and hides; an office which he discharged with great diligence and integrity. At this period, his income was about £1000 a year; a sum which in those days enabled him to live with dignity in his office, and hospitality among his friends. It was in this meridian blaze of prosperity, that he wrote his most humorous poems. His satires against the priests were probably written to oblige his patron the duke of Lancaster, who favored the cause of Wickliff, and endeavoured to expose the clergy to the indignation of the people. In the last year of Edward III. our poet was employed in a commission to treat with the French; and, in the beginning of Richard's reign, he was in some degree of favor at court. But the duke's interest failing, that of Chaucer entirely sunk; and the former passing over sea, his friends felt all the malice of the opposite party. These misfortunes occasioned his writing that excellent treatise, The Testament of Love, an imitation of Boethius on the Consolation of Philosophy. He soon after returned to Woodstock, where he produced his admirable treatise of the Astrolabe. The duke of Lancaster at last surmounting his troubles, married lady Catharine Swynford, sister to Chaucer's wife; so that Thomas Chaucer, our poet's son, became allied to most of the nobility, and to several of the kings of England. By the influence of the duke's marriage, he again obtained a considerable share of wealth. But being now near seventy, he retired to Donnington Castle near Newbury. He had not enjoyed his retirement long before Henry IV. son of the duke of Lancaster, assumed the crown, and in the first year of his reign gave our poet several marks of his favor. But the grants of the late king being annulled, Chaucer, to procure fresh grants of his pensions, left his retirement, and applied to court: where, though he obtained a confirmation of some grants, yet the fatigue of attendance, and his great age, prevented him from enjoying them. He fell sick at London, and ended his days in the seventy-second year of his age. He was interred in Westminster Abbey; and in 1556 Mr. Nicholas Bingham, a gentleman of Oxford, erected a handsome monument for him there at his own expense. Caxton first printed the Canterbury Tales; but his works were first collected and published in one volume folio by William Thynne, London, in 1542. They were afterwards reprinted in 1561, 1598, 1602; and at Oxford in 1721.

CHAUCI, an ancient people of Germany, who inhabited Chaucis. They were divided into, 1. Chauci Majores, the ancient inhabitants of the territory now called Bremen, and part of Lunenburg; and 2. Chauci Minores, the ancient inhabitants of East Friesland, and Oldenburg.

CHAUDIERE, a river of Canada, North America, has its source in Lake Megantic, Lower Canada, and after a northerly course of 102 miles, falls into the St. Lawrence, six miles above Quebec. Its breadth varies from 350 to 600 yards. Its banks are steep and woody, and the stream is divided by numerous islands; but is principally remarkable for its beautiful falls, about four miles before it discharges itself into the St. Lawrence. Here it presents one of the greatest natural curiosities of the New Continent. The stream, not less than 360 feet wide, rushes forth from the shades of a thick wood, and expands considerably just above the cataract. Immense masses of disjointed rock now arrest its progress, and impel the whole of its agitated waters down a precipice of 120 perpendicular feet. In the centre, and on the very brow of this precipice, is a projecting fragment of rock, that forms an island, on which appears a single handsome fir tree. The surrounding scenery altogether is said to be beautiful beyond description: yielding in grandeur only to the Falls of Niagara, but in picturesque combinations and effect, to no other earthly object. The water, in some particular parts of the fall, rolls over its immoveable obstructions in majestic sheets and volumes, which seem to shake the whole earth around, and to be capable of bearing away everything below: in other places it is interrupted by fragments of rock, widely scattered over the face of the precipice, and conducting the angry element from cavity to cavity, until it mingles in ungovernable rage with the boiling surge at bottom; and hurries onward until it is lost in the St. Lawrence. The margin of immense woods, on either side, adds, in no small degree, to the romance of the scenery; and uniting their dark foliage with the brown heads of the weather-beaten rocks form a fine contrast with the milky whiteness of the vapor and spray around.

CHAUD-MEDLEY. See CHANCE-MEDLEY.

CHA'VENDER, *n. s.* Fr. *chevesne.* The chub: a fish.

> These are a choice bait for the chub, or *chavender*, or indeed any great fish. *Walton's Angler.*

CHAULIEU (William Amfrye de), abbé d'Aumale, one of the most polite and ingenious of the French poets, was born in 1639, and died at the age of eighty-four. The most complete edition of his poems is that printed in 2 vols. 8vo. in 1733.

CHAUMONT, a considerable town of France, in the department of the Loire, on the Siez. It has manufactures of cloth, silk, and ribands. Twenty-two miles S. S. W. of Lyons. Population 5000.

CHAUMONTE'LLE, *n. s.* French. A sort of pear.

CHAUNY, a town of France, in the department of the Aisne, and ci-devant province of Picardy; seated on the Oise, twenty miles east of Noyon. Long. 3° 18' E., lat. 49° 17' N.

CHAUVIN (Stephen), a celebrated Protestant minister, born at Nismes in 1640. He left France upon the revocation of the edict of Nantes, and retired to Rotterdam, where he began a new Journal des Sçavans; and afterwards removing to Berlin, continued it there three years. He was made professor of philosophy at Berlin, and discharged that office with much honor and reputation. His principal work is a Philosophical Dictionary, in Latin, which he published at Rotterdam in 1692; and gave a new edition of it much augmented, at Lewarden, in 1713, folio. He died in 1735, aged eighty-five.

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CHAW, *v. a.* & *n. s.* Germ. *kauen.* To mp between the teeth; to chew, to masticate.

The noun is derived from the verb. It means the chap; the upper or under part of a beast's mouth.

And next to him [Avarice] malicious Envy rode
Upon a ravenous wolfe, and still did *chaw*
Between his cankred teeth a venemous tode
That all the poison run about his *chaw*;
But inwardly he *chawed* his own maw. *Spenser.*

They come to us, but us love draws;
He swallows us, and never *chaws*;
He is the tyrant pike, and we the fry. *Donne.*

The man who laught but once, to see an ass
Mambling to make the cross-grained thistles pass,
Might laugh again, to see a jury *chaw*
The prickles of unpalatable law. *Dryden.*

I will turn thee back, and put hooks into thy *chaws*, and will bring thee forth, and all thine army. *Ezekiel.*

CHA'WDRON, or CHAUDRON. Goth. *kuidron, kuithron,* a paunch; Sax. *cwith;* Swed. *qued;* Scot. *kite.* The stomach; the entrails of a beast. Chaldron is sometimes thus written, which is a measure of 36 bushels of coals.

Add thereto a tyger's *chawdron,*
For the ingredients of our cauldron. *Shakspeare.*

CHAZELLES (John Matthew), a celebrated French mathematician and engineer, born at Lyons in 1657. M. du Hamel, observing his strong predilection for astronomy, introduced him to M. Cassini, who employed him in his observatory. Having, in 1684, instructed the duke of Mortemar in mathematics, he procured him the professorship of hydrography, for the galleys of Marseilles. In 1686, the galleys made four courses merely for exercise. Chazelles went on board every time with them; kept his school upon the sea, and showed the practice of what he taught. In 1687, and 1688, he drew many plans of ports, roads, towns, and forts, which were lodged with the ministers of state. At the beginning of the war, which ended with the peace of Ryswick, Chazelles was sent to make the experiment, whether the galleys might not serve to tow the men of war when the wind failed or proved contrary, and help to secure the coast of France upon the ocean. Accordingly, in 1690, fifteen galleys, new built, set sail for Rochefort, cruised as far as Torbay, and proved useful at the descent upon Tinmouth. After this, he digested into order the observations he had made on the coasts of the ocean; and drew distinct maps, with descriptions to them. These maps were inserted in the Neptune Françoise, published in 1692, when Chazelles was engineer at the descent of Oneglia. To make observations on geography and astronomy, he undertook a voyage to the Levant in 1693; and, among other things, he measured the pyramids of Egypt, and found the four sides of the largest of them exactly to face the four cardinal points of the compass. He made a report of his voyage, on his return, to the Academy of Sciences, upon which he was named a member in 1695, and had many papers inserted in their Memoirs, from 1693 to 1708. He died, at Marseilles, 16th Jan. 1710.

CHEAP, *n. s.* & *adj.*
CHE'APEN, *v. a.*
CHE'APLY, *adv.*
CHE'APNESS, *n. s.*

Swed. *kop;* Teut. *kauff;* Belg. *koop;* Sax ceap, a bargain; Swed. *godt, kop;* Fr *a bonne marché;* Old Fr. *a chapt, a chat, a ceapt,* a purchase, from Goth. *kaupa.* Cheaping, chipping, is an old term for market, when connected with the names of places, as Chipping Norton, Eastcheap, Cheapside. To cheapen, is not only to bargain, but to abate the terms of the seller, or to purchase at a lower rate than is demanded; to bid for or ask the price of a commodity.

With danger uttren we all our chaffare;
Gret prees at market maketh dere ware,
And to gret *chepe* is holden at litel prise;
This knoweth every woman that is wise. *Chaucer.*

The goodness, that is *cheap* in beauty, makes beauty brief in goodness. *Shakspeare.*

Rich she shall be, that's certain; wise, or I'll none; virtuous, or I'll never *cheapen* her. *Id.*

He that is too much in any thing, so that he giveth another occasion of society, maketh himself *cheap.* *Bacon.*

Ancient statues incite merchant-strangers to bring in commodities; having for end *cheapness.* *Id.*

The same wine which we pay so dear for now-a-days, in that good world, was very good *cheap.* *Sidney.*

It is many a wise man's case to tire himself out with hunting after that abroad, which he carries about him all the while, and may have it better *cheap* at home. *L'Estrange.*

Blood, rapines, massacres, were *cheaply* bought,
So mighty recompence your beauty brought. *Dryden.*
May your sick fame still languish till it die,
And you grow *cheap* in every subject's eye. *Id.*

The discredit which is grown upon Ireland, has been the great discouragement to other nations to transplant themselves hither, and prevailed farther than all the invitations which the *cheapness* and plenty of the country has made them. *Temple.*

The merchant ought to make his out-set as *cheap* as possible, that he may find greater profit upon his returns; and nothing will enable him to do this like the reduction of the price of labour upon all our manufactures. *Spectator.*

Incomparable gem! thy worth untold;
Cheap though blood-bought; and thrown away when sold. *Cowper.*

CHEAR. See CHEER.

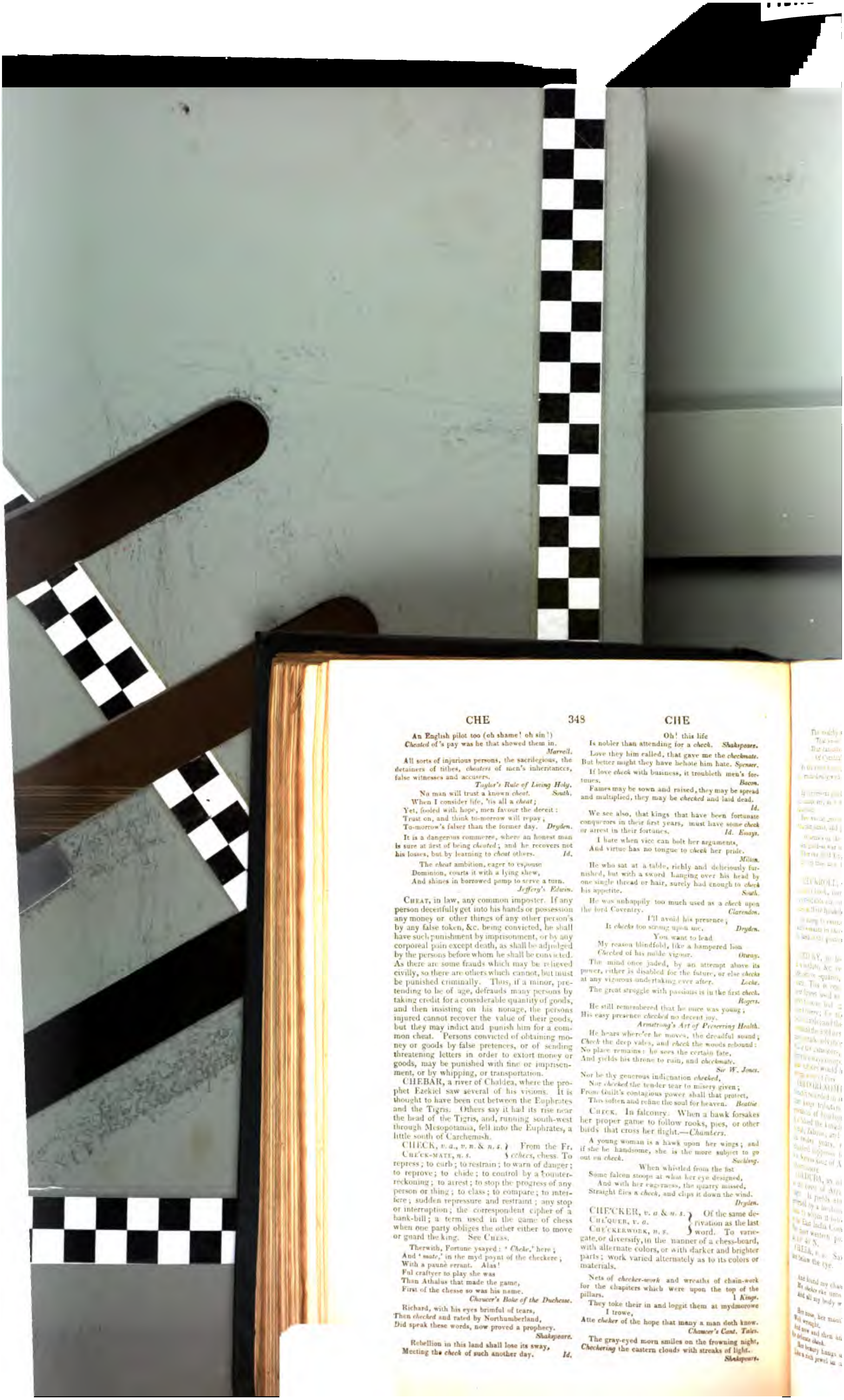
CHEAT, *v. a.* & *n. s.*
CHE'ATER, *n. s.*

Thomson traces the substantive to Sax. ceat, from Isl. and Swed. *kyta,* to change; Lat. *capta, captus;* and he gives the following definitions: deception, fraud, imposture. Johnson thus accounts for its form and application, probably from Fr. *acheter,* to purchase, alluding to the tricks used in making bargains. Of the noun he observes, some think it is abbreviated from *escheat,* because many fraudulent measures being taken by the lords of manors in procuring escheats, cheat, the abridgment, was brought to convey a bad meaning. To defraud; to impose upon; to trick. It is used commonly of low cunning. Cheat is a fraud, a trick, an imposture; a cheat, or cheater, is one guilty of fraud.

I that am curtailed of man's fair proportion;
Cheated of feature by dissembling nature,
Deformed, unfinished. *Shakspeare.*

I will be *cheater* to them both, and they shall be exchequers to me. [It is here for *escheater.*] *Id.*

And drowned their discipline like a kitten
On which they'd been so long a sitting;
Decried it as a holy *cheat,*
Grown out of date, and obsolete. *Hudibras*



An English pilot too (oh shame! oh sin!)
Cheated of 's pay was he that showed them in.
Marvell.

All sorts of injurious persons, the sacrilegious, the detainers of tithes, *cheaters* of men's inheritances, false witnesses and accusers.
Taylor's Rule of Living Holy.

No man will trust a known *cheat*. *South.*

When I consider life, 'tis all a *cheat*;
Yet, fooled with hope, men favour the deceit:
Trust on, and think to-morrow will repay;
To-morrow's falser than the former day. *Dryden.*

It is a dangerous commerce, where an honest man is sure at first of being *cheated*; and he recovers not his losses, but by learning to *cheat* others. *Id.*

The *cheat* ambition, eager to espouse
Dominion, courts it with a lying shew,
And shines in borrowed pomp to serve a turn.
Jeffery's Edwin.

Cheat, in law, any common imposter. If any person deceitfully get into his hands or possession any money or other things of any other person's by any false token, &c. being convicted, he shall have such punishment by imprisonment, or by any corporeal pain except death, as shall be adjudged by the persons before whom he shall be convicted. As there are some frauds which may be relieved civilly, so there are others which cannot, but must be punished criminally. Thus, if a minor, pretending to be of age, defrauds many persons by taking credit for a considerable quantity of goods, and then insisting on his nonage, the persons injured cannot recover the value of their goods, but they may indict and punish him for a common cheat. Persons convicted of obtaining money or goods by false pretences, or of sending threatening letters in order to extort money or goods, may be punished with fine or imprisonment, or by whipping, or transportation.

CHEBAR, a river of Chaldea, where the prophet Ezekiel saw several of his visions. It is thought to have been cut between the Euphrates and the Tigris. Others say it had its rise near the head of the Tigris, and, running south-west through Mesopotamia, fell into the Euphrates, a little south of Carchemish.

CHECK, *v. a., v. n.* & *n. s.* } From the Fr.
Che'ck-mate, *n. s.* } *echecs*, chess. To repress; to curb; to restrain; to warn of danger; to reprove; to chide; to control by a counter-reckoning; to arrest; to stop the progress of any person or thing; to class; to compare; to interfere; sudden repressure and restraint; any stop or interruption; the correspondent cipher of a bank-bill; a term used in the game of chess when one party obliges the other either to move or guard the king. See Chess.

Therwith, Fortune ysayed: '*Cheke*,' here;
And '*mate*,' in the myd poynt of the checkere;
With a paunè errant. Alas!
Ful craftyer to play she was
Than Athalus that made the game,
First of the chesse so was his name.
Chaucer's Boke of the Duchesse.

Richard, with his eyes brimful of tears,
Then *checked* and rated by Northumberland,
Did speak these words, now proved a prophecy.
Shakspeare.

Rebellion in this land shall lose its sway,
Meeting the *check* of such another day. *Id.*

Oh! this life
Is nobler than attending for a *check*. *Shakspeare.*

Love they him called, that gave me the *checkmate*.
But better might they have behote him hate. *Spenser.*

If love *check* with business, it troubleth men's fortunes. *Bacon.*

Fames may be sown and raised, they may be spread and multiplied, they may be *checked* and laid dead.
Id.

We see also, that kings that have been fortunate conquerors in their first years, must have some *check* or arrest in their fortunes. *Id. Essays.*

I hate when vice can bolt her arguments,
And virtue has no tongue to *check* her pride.
Milton.

He who sat at a table, richly and deliciously furnished, but with a sword hanging over his head by one single thread or hair, surely had enough to *check* his appetite. *South.*

He was unhappily too much used as a *check* upon the lord Coventry. *Clarendon.*

I'll avoid his presence;
It *checks* too strong upon me. *Dryden.*

You want to lead
My reason blindfold, like a hampered lion
Checked of his noble vigour. *Otway.*

The mind once jaded, by an attempt above its power, either is disabled for the future, or else *checks* at any vigorous undertaking ever after. *Locke.*

The great struggle with passions is in the first *check*.
Rogers.

He still remembered that he once was young;
His easy presence *checked* no decent joy.
Armstrong's Art of Preserving Health.

He hears where'er he moves, the dreadful sound;
Check the deep vales, and *check* the woods rebound:
No place remains: he sees the certain fate,
And yields his throne to ruin, and *checkmate*.
Sir W. Jones.

Nor be thy generous indignation *checked*,
Nor *checked* the tender tear to misery given;
From Guilt's contagious power shall that protect,
This soften and refine the soul for heaven. *Beattie*

Check. In falconry. When a hawk forsakes her proper game to follow rooks, pies, or other birds that cross her flight.—*Chambers.*

A young woman is a hawk upon her wings; and if she be handsome, she is the more subject to go out on *check*. *Suckling.*

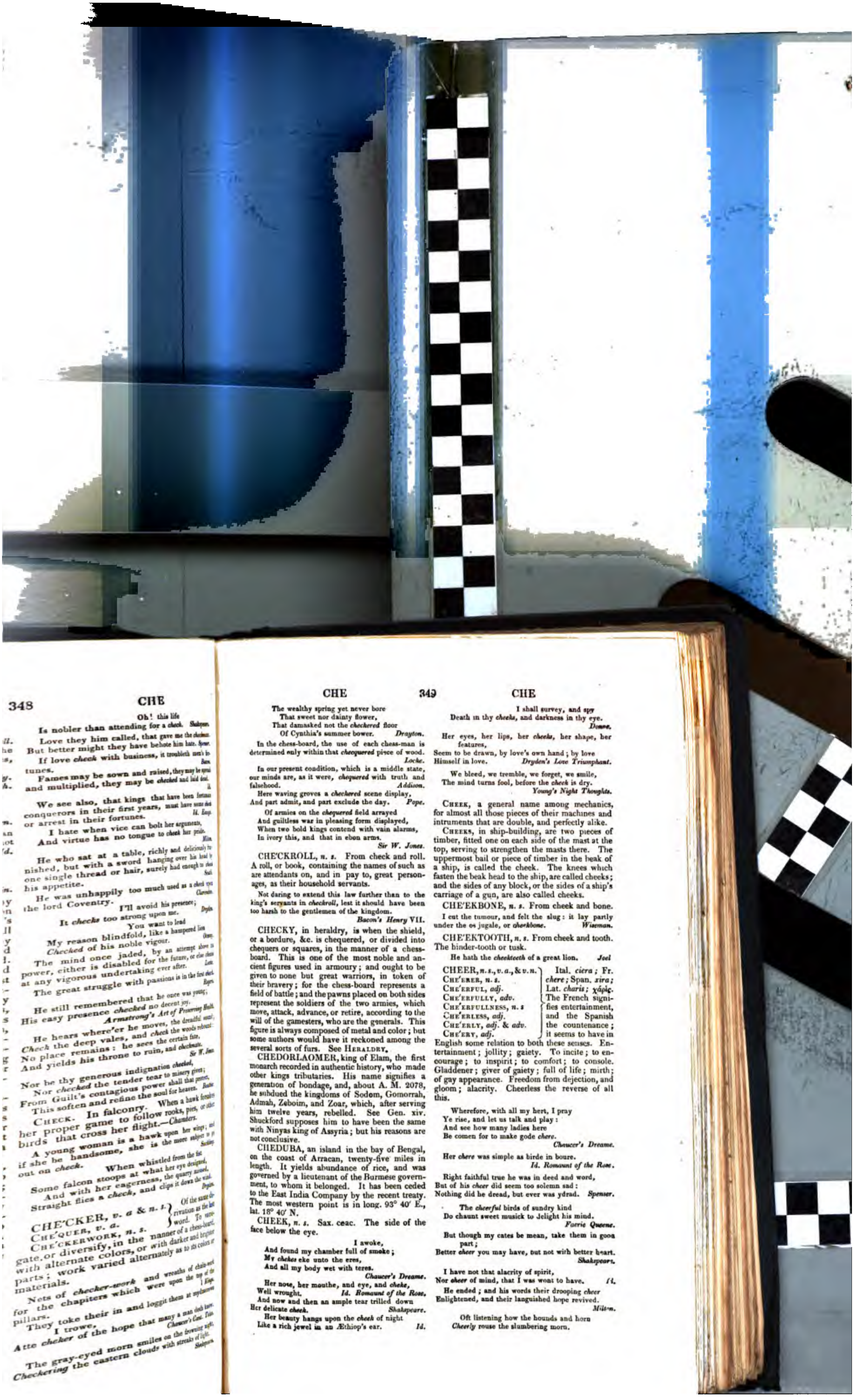
When whistled from the fist
Some falcon stoops at what her eye designed,
And with her eagerness, the quarry missed,
Straight flies a *check*, and clips it down the wind.
Dryden.

CHE'CKER, *v. a* & *n. s.* } Of the same de-
Che'quer, *v. a.* } rivation as the last
Che'ckerwork, *n. s.* } word. To variegate, or diversify, in the manner of a chess-board, with alternate colors, or with darker and brighter parts; work varied alternately as to its colors or materials.

Nets of *checker-work* and wreaths of chain-work for the chapiters which were upon the top of the pillars. 1 *Kings.*

They toke their in and loggit them at mydmorowe
I trowe,
Atte *cheker* of the hope that many a man doth know.
Chaucer's Cant. Tales.

The gray-eyed morn smiles on the frowning night,
Checkering the eastern clouds with streaks of light.
Shakspeare.



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CHE'QUER, *v. a.*
CHE'CKERWORK, *n. s.*

Nets of *checker-work* and wreaths of chain-work for the chapiters which were upon the top of the pillars. *1 Kings.*

They toke their in and loggit them at mydmorrowe I trowe,
Atte *cheker* of the hope that many a man doth knowe. *Chaucer's Cant. Tales.*

The gray-eyed morn smiles on the frowning night,
Checkering the eastern clouds with streaks of light. *Shakspeare.*

The wealthy spring yet never bore
That sweet nor dainty flower,
That damasked not the *checkered* floor
Of Cynthia's summer bower. *Drayton.*

In the chess-board, the use of each chess-man is determined only within that *chequered* piece of wood. *Locke.*

In our present condition, which is a middle state, our minds are, as it were, *chequered* with truth and falsehood. *Addison.*

Here waving groves a *checkered* scene display,
And part admit, and part exclude the day. *Pope.*

Of armies on the *chequered* field arrayed
And guiltless war in pleasing form displayed,
When two bold kings contend with vain alarms,
In ivory this, and that in ebon arms.
Sir W. Jones.

CHE'CKROLL, *n. s.* From check and roll. A roll, or book, containing the names of such as are attendants on, and in pay to, great personages, as their household servants.

Not daring to extend this law further than to the king's servants in *checkroll*, lest it should have been too harsh to the gentlemen of the kingdom.
Bacon's Henry VII.

CHECKY, in heraldry, is when the shield, or a bordure, &c. is chequered, or divided into chequers or squares, in the manner of a chess-board. This is one of the most noble and ancient figures used in armoury; and ought to be given to none but great warriors, in token of their bravery; for the chess-board represents a field of battle; and the pawns placed on both sides represent the soldiers of the two armies, which move, attack, advance, or retire, according to the will of the gamesters, who are the generals. This figure is always composed of metal and color; but some authors would have it reckoned among the several sorts of furs. See HERALDRY.

CHEDORLAOMER, king of Elam, the first monarch recorded in authentic history, who made other kings tributaries. His name signifies a generation of bondage, and, about A. M. 2078, he subdued the kingdoms of Sodom, Gomorrah, Admah, Zeboim, and Zoar, which, after serving him twelve years, rebelled. See Gen. xiv. Shuckford supposes him to have been the same with Ninyas king of Assyria; but his reasons are not conclusive.

CHEDUBA, an island in the bay of Bengal, on the coast of Arracan, twenty-five miles in length. It yields abundance of rice, and was governed by a lieutenant of the Burmese government, to whom it belonged. It has been ceded to the East India Company by the recent treaty. The most western point is in long. 93° 40′ E., lat. 18° 40′ N.

CHEEK, *n. s.* Sax. ceac. The side of the face below the eye.

I awoke,
And found my chamber full of smoke;
My *chekes* eke unto the eres,
And all my body wet with teres.
Chaucer's Dreame.

Her nose, her mouthe, and eye, and *cheke*,
Well wrought. *Id. Romaunt of the Rose.*

And now and then an ample tear trilled down
Her delicate *cheek.* *Shakspeare.*

Her beauty hangs upon the *cheek* of night
Like a rich jewel in an Æthiop's ear. *Id.*

I shall survey, and spy
Death in thy *cheeks*, and darkness in thy eye.
Donne.

Her eyes, her lips, her *cheeks*, her shape, her features,
Seem to be drawn, by love's own hand; by love
Himself in love. *Dryden's Love Triumphant.*

We bleed, we tremble, we forget, we smile,
The mind turns fool, before the *cheek* is dry.
Young's Night Thoughts.

CHEEK, a general name among mechanics, for almost all those pieces of their machines and intruments that are double, and perfectly alike.

CHEEKS, in ship-building, are two pieces of timber, fitted one on each side of the mast at the top, serving to strengthen the masts there. The uppermost bail or piece of timber in the beak of a ship, is called the cheek. The knees which fasten the beak head to the ship, are called cheeks; and the sides of any block, or the sides of a ship's carriage of a gun, are also called cheeks.

CHE'EKBONE, *n. s.* From cheek and bone.

I cut the tumour, and felt the slug: it lay partly under the os jugale, or *cheekbone.* *Wiseman.*

CHE'EKTOOTH, *n. s.* From cheek and tooth. The binder-tooth or tusk.

He hath the *cheekteeth* of a great lion. *Joel*

CHEER, *n. s.*, *v. a.*, & *v. n.* } Ital. *ciera*; Fr. *chere*; Span. *xira*; Lat. *charis*; χάρις. The French signifies entertainment, and the Spanish the countenance; it seems to have in English some relation to both these senses. Entertainment; jollity; gaiety. To incite; to encourage; to inspirit; to comfort; to console. Gladdener; giver of gaiety; full of life; mirth; of gay appearance. Freedom from dejection, and gloom; alacrity. Cheerless the reverse of all this.
CHE'ERER, *n. s.*
CHE'ERFUL, *adj.*
CHE'ERFULLY, *adv.*
CHE'ERFULLNESS, *n. s*
CHE'ERLESS, *adj.*
CHE'ERLY, *adj.* & *adv.*
CHE'ERY, *adj.*

Wherefore, with all my hert, I pray
Ye rise, and let us talk and play:
And see how many ladies here
Be comen for to make gode *chere.*
Chaucer's Dreame.

Her *chere* was simple as birde in boure.
Id. Romaunt of the Rose.

Right faithful true he was in deed and word,
But of his *cheer* did seem too solemn sad:
Nothing did he dread, but ever was ydrad. *Spenser.*

The *cheerful* birds of sundry kind
Do chaunt sweet musick to delight his mind.
Faerie Queene.

But though my cates be mean, take them in good part;
Better *cheer* you may have, but not with better heart.
Shakspeare.

I have not that alacrity of spirit,
Nor *cheer* of mind, that I was wont to have. *Id.*

He ended; and his words their drooping *cheer*
Enlightened, and their languished hope revived.
Milton.

Oft listening how the hounds and horn
Cheerly rouse the slumbering morn.

Doctrine is that which must prepare men for discipline; and men never go on so *cheerfully*, as when they see where they go. *South.*

Sad Amynta sighed alone,
From the *cheerless* dawn of morning
Till the dews of night returning. *Dryden.*

Displeased at what, not suffering, they had seen,
They went to *cheer* the faction of the green. *Id.*

With what resolution and *cheerfulness*, with what courage and patience, did vast numbers of all sorts of people, in the first ages of Christianity, encounter all the rage and malice of the world, and embrace torments and death. *Tillotson.*

They are useful to mankind, in affording them convenient situations of houses and villages, reflecting the benign and cherishing sun beams, and so rendering their habitations both more comfortable and more *cheerly* in winter. *Ray on the Creation.*

Hark! a glad voice the lonely desert *cheers*:
Prepare the way; a god, a god appears!
Pope's Messiah.

Saffron is the safest and most simple cordial, the greatest reviver of the heart, and *cheerer* of the spirits. *Temple.*

Prime *cheerer*, light,
Of all material beings first and best.
Thomson's Summer.

Come, let us hie, and quaff a *cheery* bowl;
Let cyder new wash sorrow from thy soul.
Gay's Pastorals.

Hope, like the glimmering taper's light,
Adorns and *cheers* the way;
And still as darker grows the night
Emits a brighter ray. *Goldsmith.*

And none did love him—though to hall and bower
He gathered revellers from far and near,
He knew them flatterers of the festal hour;
The heartless parasites of present *cheer*.
Byron's Childe Harold.

CHEESE, *n. s.*
CHE'ESE-CAKE, *n. s.*
CHE'ESE-MONGER, *n. s.*
CHE'ESE-PARING,
CHE'ESE-PRESS, *n. s.*
CHE'ESE-VAT, *n. s.*
CHE'ESY, *adj.*

Lat. *caseus;* Sax. cyse; Tartar and Turk. *aous*, coagulated milk, produced from Goth. and Swed. *ost*, curds. Food made from milk curds. Cheese-cake consists of soft curds, sugar, and butter. Cheesemonger is one who deals in cheese. The press and the vat are machines used in the making of cheese. In the one the curds are pressed and in the other they are confined.

I will rather trust a Fleming with my butter, the Welshman with my *cheese*, than my wife with herself. *Shakspeare.*

Of all *cheeses*, I take that kind which we call Banbury *cheese* to be the best. *Burton's Anat. Mel.*

A true owl of London,
That gives out he's undone,
Being a *cheesemonger*,
By trusting. *Ben Jonson.*

His sense occasions the careless rustic to judge the sun no bigger than a *cheesevat*. *Glanville.*

Where many a man at variance with his wife,
With softening mead and *cheesecake* ends the strife.
King.

The cleanly *cheesepress* she could never turn,
Her aukward fist did ne'er employ the churn.
Gay's Pastorals.

Acids mixed with them precipitate a tophaceous chalky matter, but not a *cheesy* substance.
Arbuthnot on Aliments.

But how shall I
Pass where in piles Cornavion *cheeses* lye?
Cheese that the table's closing rites denies,
And bids me with the unwilling chaplain rise.
Gay.

Ye who but see the saving man at table
And scorn his temperate board as none at all,
And wonder how the wealthy can be sparing,
Know not what visions spring from each *cheese-paring*.
Byron.

CHEESE, in rural economy, is composed of coagulated milk, which has undergone a chemical process, combined with the mechanical operation of a powerful press, usually employed to expel the serum or whey, which would otherwise retain it in a nearly fluid state, and as such produce decomposition.

The quality, and as such the value, of cheese generally depends on the nature of the milk employed, which varies very considerably in different parts of England. Indeed, almost every country has places noted for this commodity; thus Chester and Gloucester cheese are famous in England; and the Parmesan cheese is in no less repute abroad, especially in France. This sort of cheese is entirely made of sweet cow-milk; while at Rochefort, in Languedoc, they make it of ewes' milk; and in other places it is usual to add goat or ewe's milk, in a certain proportion, to that of the cow. There is likewise a kind of medicated cheese made by intimately mixing the expressed juice of certain herbs, as sage or mint, with the curd, before it is formed into a cheese. The Laplanders manufacture a species of cheese of the milk of their rein-deer, which is not only of great service to them as food, but also for a variety of other purposes connected with domestic economy.

The finest cheese prepared in England, speaking generally, is furnished from the dairies in Cheshire, some connoisseurs may perhaps prefer Stilton; and, as this important article of British manufacture is now exported to a considerable extent, we purpose under the article Dairy to enter pretty fully into the various modes of preparing it. See DAIRY.

CHEILOCACE, a swelling of the lips, to which the inhabitants of northern countries, especially children, are said to be very subject.

CHEIRANTHUS, stock gilliflower, or wall-flower, a genus of the siliquosæ order, and the tetradynamia class of plants: GERM. marked with a glandulous denticle on each side; CAL. is close, with two of its leaves gibbous at the base; SEED plane. There are thirty-four known species, of which the following are most worthy of notice:—C. annuus, or ten weeks' stock, with an upright, woody, smooth stalk, divided into a branchy head, twelve or fifteen inches high, garnished with spear-shaped, blunt, hoary leaves, a little indented, and all the branches terminated by long erect spikes of numerous flowers of different colors, in different varieties. C cheiri, or the common wall-flower, with ligneous, long, tough roots; an upright, woody, abiding stalk, divided into many erect angular branches, forming a bushy head from one to two feet high, closely garnished with spear-shaped acute, smooth leaves, and all the branches term-

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nating in long erect spikes of numerous flowers, which in different varieties are yellow, bloody, white, &c. C. incanus, the hoary cheiranthus, with ligneous, long, naked, white roots; and an upright, strong, woody, abiding stem, from one to three feet high, branchy at top, adorned with long, spear-shaped, obtuse, hoary leaves; and the top of the stalk and all the branches terminated by erect spikes of flowers from one to two or three feet long, of different colors in different varieties. The last two sorts are very hardy evergreen biennials or perennials; but the first, being an annual plant, must be continued by seed sown every year; and even the last two, notwithstanding their being perennial, degenerate so much in their flowers after the first year, that it will be proper also to raise an annual supply of them. The seeds are to be saved only from the plants with single flowers; for the double ones bring no seeds to perfection. The seeds are to be chosen from such flowers as have five, six, or more petals, or from such as grow near to the double ones. They may be sown in the full ground in the spring, and afterwards transplanted. When fine doubles of the last two kinds are obtained, they may be multiplied by slips from the old plants.

CHEKAO, in natural history, a hard, stony earth found in many parts of the East Indies, and sometimes used by the Chinese in their porcelain manufactures.

CHEKE (Sir John), a celebrated statesman, grammarian, and divine, of an ancient family in the Isle of Wight, was born at Cambridge in 1514, and educated in that university; where, after taking his degrees in arts, he was first chosen Greek lecturer, and in 1540 professor of that language, with a stipend of £40 a-year. In this station he was principally instrumental in reforming the pronunciation of the Greek language, which, having been much neglected, was imperfectly understood. In 1544 he was sent to the court of Henry VIII., and appointed tutor for the Latin language, jointly with Sir Anthony Cooke, to prince Edward, about which time he was made canon of the college newly founded in Oxford. On the accession of his royal pupil to the crown, he was first rewarded with a pension of 100 marks, and afterwards obtained several considerable grants from the crown. In 1550 he was made chief gentleman of the privy chamber; in 1551 he was knighted; in 1552 made chamberlain of the exchequer; in 1553 clerk of the council; and soon after secretary of state and privy councillor. But these honors were of short duration. Having concurred in the measures of the duke of Northumberland, settling the crown on the unfortunate lady Jane Grey, and acted as her secretary during the nine days of her reign, on the accession of queen Mary he was sent to the tower, and stripped of the greatest part of his possessions. In September, 1554, he obtained his liberty, and a license to go abroad. He first went to Basil, thence to Italy, and afterwards returned to Strasburg, where he was reduced to the necessity of reading Greek lectures for subsistence. In 1556 he set out to meet his wife at Brussels; but, before he reached that city, he was seized by order of Philip II., hoodwinked, and thrown into a waggon; and thus ignominiously conducted to a ship, which brought him to the tower of London. He soon found that religion was the cause of his imprisonment; for he was immediately visited by two Romish priests, who piously endeavoured to convert him, but without success. However, he was visited by Fleckenham; who told him from the queen, that he must either comply or burn. Sir John accordingly complied in form, and his lands were restored: but his remorse soon put an end to his life. He died in September, 1557, at the house of his friend Mr. Peter Osborne, in Wood-street, London, and was buried in St. Alban's church. He left three sons, the eldest of whom, Henry, was knighted by queen Elizabeth. He wrote, 1. A Latin Translation of two of St. Chrysostom's Homilies, London, 1543, 4to. 2. The Hurt of Sedition, London, 1549, 1576, 1641. 3. Latin Translation of the English Communion Service: printed among Bucer's Opuscula. 4. De Pronunciatione Græcæ, Basil, 1555, 8vo.

CHELIDONIUM, celandine, horned, or prickly poppy, a genus of the monogynia order and pentandria class of plants; natural order twenty-seventh, rhœadæa: cor. is tetrapetalous: cal. diphyllous, siliqua unilocular and linear. C. majus is an article in the materia medica.

CHELMSFORD, a populous town in the centre of Essex, and the capital of the county, is seated in a beautiful valley between the Chelmer and the Can. Maurice, bishop of London, first made it a place of importance, A. D. 1100, by building a bridge of three arches over the latter river; which, being narrow, though very durable, was taken down not long since, and an elegant stone bridge of one arch erected in its stead. The natural confluence of these rivers is about half a mile from the town; but a little below the bridge the Chelmer is diverted into the Can by a canal. Chelmsford is separated by the Can from the hamlet of Moulsham. The principal street is spacious, and adorned with elegant buildings. The town has an ancient Gothic church; a free-school founded by Edward VI.; a theatre; and a magnificent new county house, fronted with stone, and placed with great taste, in an oblique position, at the end of the high street. In an open space, adjoining the town-hall, stands a public conduit; its origin is uncertain, but it has been beautified by the family of the Fitzwalters, is of a quadrangular form, about fifteen feet high, and built of stone and brick, with a pipe on each of the four sides. The spring which supplies it, rises at Burgess-Well, about a quarter of a mile from the town. To the left of the Shire-Hall is the church, about 300 years old, a stately structure, at the west end of which stands a square stone tower, with pyramids at each corner, and a neat spire. The windows are gothic. In 1800 the whole middle aisle, from the tower to the chancel, fell in. Chelmsford is a great thoroughfare; the east road from London passing through it. The late queen Charlotte gave an annual plate of 100 guineas, and two subscription plates are annually run for on the race ground at Gallywood common. There is a well-stocked market on Friday, and this town sends two members to parliament. It lies twenty-one miles south-west by west of Colchester, and twenty-nine miles north-east by east of London.

Chelmsford, a town of Massachusetts, in Middlesex county, situated on the south side of the Merrimack, over which is a curious bridge, at Pawtucket Falls, which connects the town with Dracut. It is twenty-eight miles N. N.W. of Boston.

CHELONE, in botany, a genus of the angiospermia order, and didynamia class of plants; natural order fortieth, personatæ: cal. quinquepartite; the rudiment of a fifth filament among the highest stamina; the capsule bilocular. There are three species, all natives of North America; and are herbaceous flowery perennials, with upright stalks two feet high, decorated with spear-shaped leaves, and beautiful spikes of monopetalous, ringent flowers, red, rose-colored, blue, and purple. They flower from September to November, and are sometimes succeeded by ripe seeds in this country. They are very hardy, and may be propagated by seeds in any soil; but the first two multiply so fast by their creeping roots, that the seeds are seldom regarded.

CHELSEA, a fine village, situated on the north bank of the Thames, a mile west of Westminster, remarkable for the magnificent hospital for invalids and old decrepit soldiers; and a noble botanic garden belonging to the Company of Apothecaries. The royal hospital for invalids was first projected by Stephen Fox, who himself contributed above £13,000 to its establishment. It was designed by Sir C. Wren, begun by Charles II. carried on by James II. and finished by William III. It consists of a vast range of buildings, that form three large elegant squares. It stands at a small distance from the river, and is built of brick, excepting the ornamental parts, which are of freestone. The principal building is a large quadrangle, open on the south side, having in the centre a bronze statue of the founder Charles II. in Roman attire. Its whole length is 270 feet. In the wings are sixteen wards, in which are accommodations for above 400 men; and there are, besides, in the other buildings, a considerable number of apartments for officers and servants. The whole expense of erecting the building is computed to have been £150,000; and the extent of it is about forty-eight acres. It is under the direction of commissioners, who consist generally of officers of state and of war. The governor has a salary of £500, the lieutenant-governor £400, the major £250. The physician, secretary, comptroller, deputy-treasurer, steward, and surgeon, have each £100 yearly, and many of the other officers have considerable salaries. There are also inferior officers, serjeants, corporals, and drums, who all do garrison duty; and there are above 10,000 out-pensioners; all which expense is defrayed by a poundage deducted from the army, deficiences being made good by parliament. The annual expense of the house establishment, including officers' salaries, and all incidental charges, varies from 27,000 to £30,000. The botanic garden is very extensive, enriched with a variety of domestic and exotic plants, the original stock of which was given to the apothecaries of London by Sir Hans Sloane. The Royal Military Asylum for educating about 1000 children of non-commissioned officers and soldiers, has lately been erected by a grant from parliament, near Sloane Square. Towards the support of this institution, the whole army contributes one day' pay per annum.

CHELTENHAM, or Chiltenham, a market town, nine miles north-east of Gloucester, and ninety-five from London, which takes its name from the rivulet Chilt, passing through it into the Severn from Dowdeswell. The town lies in a flat marshy soil, on the borders of a fine fertile vale, about two miles from Clieve, Presbury, and Lockhampton hills, which join the Cotswolds, and form a kind of semicircle, defending the town from those cold blasts which proceed from the eastern quarter. There is no manufacture carried on, but the poorer inhabitants spin wool for the clothiers around. On an easy ascent, about half a mile south of the church, rises the Spa, which first attracted the attention of the public in 1740. It is ascended by pleasant gravel walks, and at the Spa there is a walk 200 yards long, and twenty feet broad. The pump appears under a dome, through a neat archway, with two posterns, and supported by pillars; on the left is the breakfasting room, forty feet by twenty, with an orchestra; this is occasionally converted into a ball-room. The season for drinking the waters is from May to October. They are impregnated with salts, sulphur, steel, calcareous earth, and operate at the same time as purgative and restorative, very much resembling those of Scarborough. Other springs of the same quality are found not far distant, but they are not frequented. Dry weather is the best for these waters, as well as for all mineral waters; they are more plentiful in rainy seasons, but not so powerful. The town has a market on Thursday, and fairs on Holy Thursday, St. James's day, and the 2d Thursday in September. It has been much improved within these twenty years. A new market-house has been erected, the streets cleaned and paved; a theatre has been erected, and the whole town beautified considerably. The church is a venerable gothic structure, in the form of a cross, with aisles on each side, and an octagonal spire in the middle. The churchyard is the most commodious in England, 300 feet long, and is planted with double rows of lime-trees.

CHE'LY, *n. s.* Lat. *chela.* The claw of a shell fish.

> It happeneth often, I confess, that a lobster hath the *chely*, or great claw, of one side longer than the other. *Browne.*

CHEMINAIS (Timoleon), a celebrated French preacher, born at Paris in 1682. He was for some time teacher of languages and rhetoric in the Jesuits' school at Orleans; and afterwards gained much applause as a preacher, both at Paris and Versailles: his style was exceedingly pathetic, and indeed unrivalled till the appearance of Massillon. His health early declined, but such was his zeal that when unable to preach he visited the country for the purpose of instructing the poor. After his death, which took place in his thirty-eighth year, three volumes of his sermons were published by Bretonneau, which have been since reprinted.

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CHEMISTRY.

1. CHEMISTRY. The reader will observe, by attending to the following definitions of this interesting and popular science, that there have been some difficulties attendant upon endeavours to mark precisely its proper boundaries, or to distinguish accurately the nature of chemical, as separate from other branches of natural philosophy.

2. 'When we consider,' says the Abbé Haüy, 'the general and permanent properties of bodies, or when the changes that these bodies undergo are slight, and they return to their former state after the cause has ceased to act; when also, the laws which determine the reciprocal action of the same bodies are propagated to distances more or less considerable; the results of our observations are still within the confines of natural philosophy. But when the phenomena depend on the ultimate action which the molecules exert on each other at distances almost infinitely small, by virtue of which the molecules separate, to unite again in a different order, forming new combinations with new properties, the study of the phenomena belongs to chemistry.'

3. 'Chemistry,' says Jacquin, 'is that branch of natural philosophy which unfolds the nature of all material bodies, determines the number and properties of their component parts, and teaches us how those parts are united, and by what means they may be separated and recombined.'

4. Dr. Thomson defines the science to be 'that which treats of those events or changes in natural bodies which are not accompanied by sensible motions.'

5. Murray calls 'it the science which investigates the combinations of matter, and the laws of those general forces by which these combinations are established and subverted.'

6. 'It is the object of chemistry,' says Mr. Brande, 'to investigate all changes in the constitution of matter, whether effected by heat, mixture, or other means.'

7. Dr. Ure's definition is, 'the science which investigates the composition of material substances, and the permanent changes of constitution which their mutual actions produce.'

8. While an author, of whose labors in the present treatise we shall largely avail ourselves, defines chemistry, that branch of philosophy, 'the object of which is to discover and explain the changes of composition that occur among the integrant and constituent parts of different bodies.'

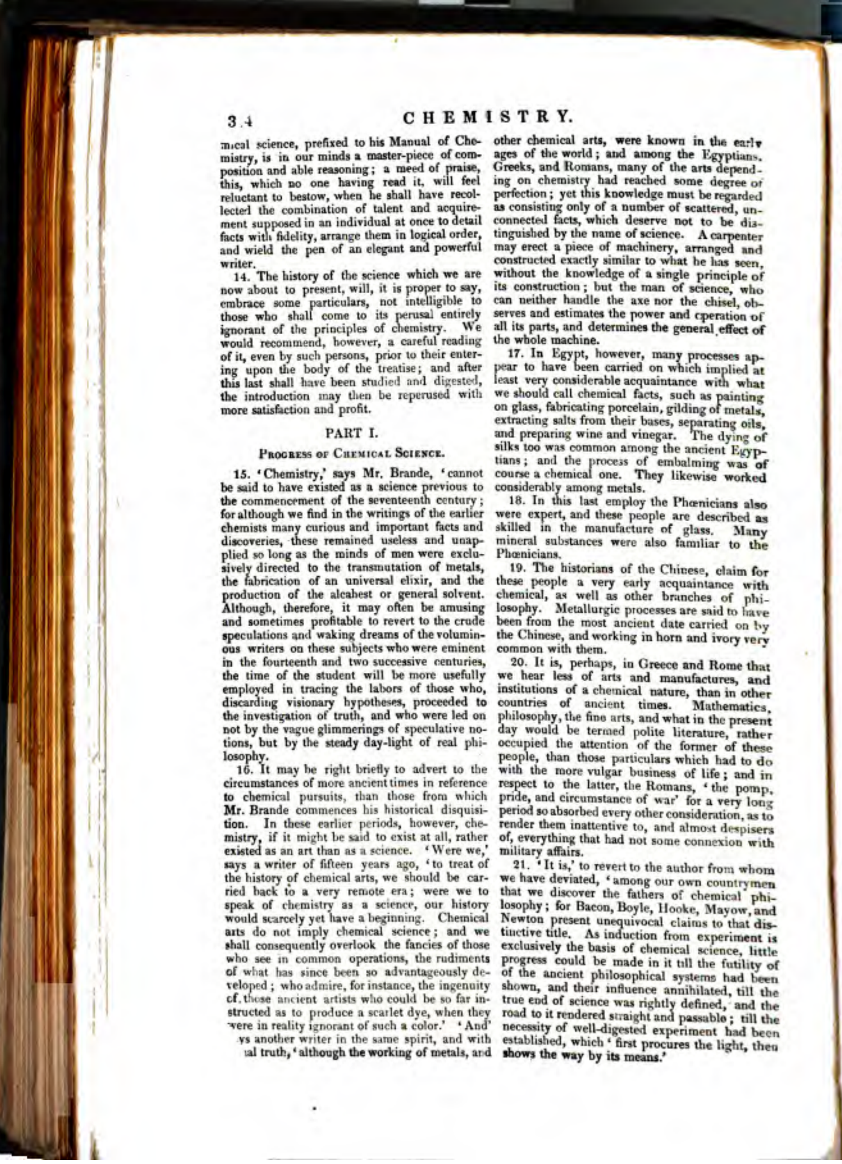
9. It will be perceived that most of the above definitions (and we might multiply their number) go upon the idea of combination in bodies, producing change; a principle we may illustrate by a very familiar example. Suppose two substances in a state of powder, or minute comminution of their particles, to be rubbed together in a mortar, an intimate mixture would be thus obtained of the particles of the one with the particles of the other mass; but suppose this to be mere mixture, and that, notwithstanding their very intimate combination, the particles of each body retain their essential characters, the operation will have been, not a chemical, but a mechanical process; no absolute change has been effected, and why? because, as the chemists express themselves, no attraction had existed between these bodies; but supposing two other masses of matter to be treated in the same manner, the particles of these last having towards each other a mutual attraction or affinity; then, instead of a simple intermixture, or mere mechanical combination of the two substances, a positive interchange of principles shall have been effected, and the result of the union shall be a tertium quid; a something actually different from the two materials upon which the experiment has been made.

10. In this example the distinction between mechanical and chemical agency is sufficiently definite and precise; but a change may be effected by the mutual action of bodies upon each other, which is rather formative than essential, and it is in these last that the sciences of natural philosophy and chemistry seem so to blend in with each other, that it is not in all instances easy to preserve their respective peculiarities. If change of essence were positively requisite to constitute a chemical process, solution and the expansion of bodies by heat would scarcely be recognisable as chemical effects, and there are many circumstances that occur in nature or are instituted by art, which are at once both formative and essential; although, then, change in essence is one of the most conspicuous, it is not, perhaps, the sole characteristic of chemical agency; and if we be desirous of stamping a more abstract and definite mark upon the objects of chemical investigation, we must still seek for something further in order to effect our purpose.

11. We have seen above that Mr. Brande claims for chemistry the right and power of investigating all changes in the constitution of matter; and it is in this word constitution that we shall find the principal secret of distinction to be between this and other branches of natural science, the constituent principles, or, as it is somewhat hypothetically expressed, the molecules of bodies being the objects of its recognition, while the business of the natural philosopher rather refers to mass. See ATTRACTION.

12. We do not know then that we can do better than adopt the definition above given from Dr. Henry, and call chemistry 'that science, the object of which, is to discover and explain the changes of composition that occur among the integrant and constituent parts of different bodies.'

13. For the introductory and historical part of the present treatise, that part to which we immediately proceed, we shall be much indebted to another contemporary writer of great and deserved celebrity; we allude to Mr. Brande, whose historical sketch of the progress of che-



mical science, prefixed to his Manual of Chemistry, is in our minds a master-piece of composition and able reasoning; a meed of praise, this, which no one having read it, will feel reluctant to bestow, when he shall have recollected the combination of talent and acquirement supposed in an individual at once to detail facts with fidelity, arrange them in logical order, and wield the pen of an elegant and powerful writer.

14. The history of the science which we are now about to present, will, it is proper to say, embrace some particulars, not intelligible to those who shall come to its perusal entirely ignorant of the principles of chemistry. We would recommend, however, a careful reading of it, even by such persons, prior to their entering upon the body of the treatise; and after this last shall have been studied and digested, the introduction may then be reperused with more satisfaction and profit.

PART I.

Progress of Chemical Science.

15. 'Chemistry,' says Mr. Brande, 'cannot be said to have existed as a science previous to the commencement of the seventeenth century; for although we find in the writings of the earlier chemists many curious and important facts and discoveries, these remained useless and unapplied so long as the minds of men were exclusively directed to the transmutation of metals, the fabrication of an universal elixir, and the production of the alcahest or general solvent. Although, therefore, it may often be amusing and sometimes profitable to revert to the crude speculations and waking dreams of the voluminous writers on these subjects who were eminent in the fourteenth and two successive centuries, the time of the student will be more usefully employed in tracing the labors of those who, discarding visionary hypotheses, proceeded to the investigation of truth, and who were led on not by the vague glimmerings of speculative notions, but by the steady day-light of real philosophy.

16. It may be right briefly to advert to the circumstances of more ancient times in reference to chemical pursuits, than those from which Mr. Brande commences his historical disquisition. In these earlier periods, however, chemistry, if it might be said to exist at all, rather existed as an art than as a science. 'Were we,' says a writer of fifteen years ago, 'to treat of the history of chemical arts, we should be carried back to a very remote era; were we to speak of chemistry as a science, our history would scarcely yet have a beginning. Chemical arts do not imply chemical science; and we shall consequently overlook the fancies of those who see in common operations, the rudiments of what has since been so advantageously developed; who admire, for instance, the ingenuity of those ancient artists who could be so far instructed as to produce a scarlet dye, when they were in reality ignorant of such a color.' 'And' ys another writer in the same spirit, and with ial truth, 'although the working of metals, and other chemical arts, were known in the early ages of the world; and among the Egyptians, Greeks, and Romans, many of the arts depending on chemistry had reached some degree of perfection; yet this knowledge must be regarded as consisting only of a number of scattered, unconnected facts, which deserve not to be distinguished by the name of science. A carpenter may erect a piece of machinery, arranged and constructed exactly similar to what he has seen, without the knowledge of a single principle of its construction; but the man of science, who can neither handle the axe nor the chisel, observes and estimates the power and operation of all its parts, and determines the general effect of the whole machine.

17. In Egypt, however, many processes appear to have been carried on which implied at least very considerable acquaintance with what we should call chemical facts, such as painting on glass, fabricating porcelain, gilding of metals, extracting salts from their bases, separating oils, and preparing wine and vinegar. The dying of silks too was common among the ancient Egyptians; and the process of embalming was of course a chemical one. They likewise worked considerably among metals.

18. In this last employ the Phœnicians also were expert, and these people are described as skilled in the manufacture of glass. Many mineral substances were also familiar to the Phœnicians.

19. The historians of the Chinese, claim for these people a very early acquaintance with chemical, as well as other branches of philosophy. Metallurgic processes are said to have been from the most ancient date carried on by the Chinese, and working in horn and ivory very common with them.

20. It is, perhaps, in Greece and Rome that we hear less of arts and manufactures, and institutions of a chemical nature, than in other countries of ancient times. Mathematics, philosophy, the fine arts, and what in the present day would be termed polite literature, rather occupied the attention of the former of these people, than those particulars which had to do with the more vulgar business of life; and in respect to the latter, the Romans, 'the pomp, pride, and circumstance of war' for a very long period so absorbed every other consideration, as to render them inattentive to, and almost despisers of, everything that had not some connexion with military affairs.

21. 'It is,' to revert to the author from whom we have deviated, 'among our own countrymen that we discover the fathers of chemical philosophy; for Bacon, Boyle, Hooke, Mayow, and Newton present unequivocal claims to that distinctive title. As induction from experiment is exclusively the basis of chemical science, little progress could be made in it till the futility of of the ancient philosophical systems had been shown, and their influence annihilated, till the true end of science was rightly defined, and the road to it rendered straight and passable; till the necessity of well-digested experiment had been established, which 'first procures the light, then shows the way by its means.'

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22. The history of chemistry necessarily comprises an account of alchemic attempts to convert the baser metals into gold, to obtain an universal medicine, and to procure the means of obviating the necessity of death; for, difficult as it may appear in the present day to conceive how these visionary projects could be made the subjects of serious investigation and pursuit, certain it is, that such notions were largely entertained and extensively acted on; and in some cases by individuals, who, with the exception of being influenced by this, the fanatic knavery of the times in which they lived, seemed men of high intellect and correct morals.

23. Under the word ALCHEMY the reader will find a notice of some of the most conspicuous of those individuals, whose exertions and experiments were directed by the desire and expectation of finding 'the philosopher's stone,' and the 'universal elixer.' We shall in this place enlarge a little on this history, and present the reader with an abridgment of Mr. Brande's account of Alchymy, such we find to be his orthography of the word. See the Etymological Definitions.

24. Hermes Trismegistus, who is said to have lived in the year of the world 2076 (we now extract from Mr. Brande), has generally been quoted as the oldest of the alchemists: there can, however, be very little doubt that the writings attributed to him are entirely spurious. The Tractatus Aureus, or Golden Work, is evidently a farrago of occult philosophy, belonging to a much later period. Hermes, at the outset, is made to apologise for divulging the secrets of the black art. 'I should never have revealed them,' he says, 'had not the fear of eternal judgment, or the hazard of the perdition of my soul, prevailed with me for such a concealment. It is a debt I am willing to pay to the just, even as the Father of the just has liberally bestowed it upon me.' After this prelude we might expect to be let into some of the mysteries of alchemy, but our curiosity is quickly disappointed by finding that they are only revealed to the eyes and ears of the sons of art, 'not to the profane, the unworthy, and the scoffers, who, being as greedy dogs, wolves, and foxes, are not to feed at our divine repast.' The reader is then conducted into what is termed the innermost chamber, and regaled with a history and explication of various matters relating to the philosopher's stone, by means of which, 'through the permission of the Omnipotent, the greatest disease is cured, and sorrow, distress, evil, and every hurtful thing evaded, by help of which we pass from darkness to light, from a desert and wilderness to a habitation and home, and from straightness and necessities to a large and ample estate.' We are then directed to 'catch the flying bird,' by which is meant quicksilver, 'and drown it so that it may fly no more;' this is what is afterwards termed the fixation of mercury, by uniting it to gold. It is then to be plunged into the 'well of the philosophers,' or aqua regia, 'by which its soul will be dissipated, and its corporeal particles united to the red eagle,' or muriate of gold.

25. All the details bear upon this one point, that of increasing the weight of gold by the influence of mercury, and this imaginary document of Hermes will suffice as an example of all the earliest alchemical authors.

26. Geber is another great name in the history of alchemy, who lived probably not later than the seventh century. His three books of alchemy were published at Strasburg in 1520, and if genuine, of which there is much doubt, contain matter that well justifies the praise of Boerhaave, who considers him as a first-rate philosopher of his age. In his chapter on the Alchemie of Sol, after descanting upon the different means of refining and dissolving gold, he describes several solar medicines, in language which is tolerably intelligible; they are all solutions of gold in nitro-muriatic acid, with the addition of quicksilver, nitre, common salt, and some other saline matters, and the student is directed to prepare his mind for their performance by suitable acts of piety and charity, which, if earnestly and perseveringly carried on, may, after due time, enable him, in the language of Dr. Salmon, his translator, 'to change argent vive into an infinite solific and lunific, without the help of anything more than its multiplication.

27. Artephius, in 1230, published several alchemical tracts. We are told by Roger Bacon and others that he died at the advanced age of 125, having prolonged his life by the miraculous virtues of his medicines; but his name, and that of John de Rupescissa, are now deservedly buried in oblivion.

28. Roger Bacon was a native of Ilchester, in Somersetshire, and descended from an ancient and honorable family. He acquired celebrity at Oxford, after his return from Paris, in 1240; but his boldness in opposing the dogmas of the schools, occasioned him to be subjected to much and violent opposition, and even, it is said, endangered his life.

29. I know of no work, says Mr. Brande, that strikes one with more surprise and admiration than the Opus Majus of Roger Bacon, 'he stands alone, like a beacon upon a waste; his expressions are conspicuous and comprehensive, such as betoken a rare and unclouded intellect; and they are full of anticipations of the advantages likely to be derived from that mode of investigation insisted upon by his great successor, chancellor Bacon. This resemblance between Roger Bacon and his illustrious namesake has scarcely been noticed by the historians of his period; it has, however, not escaped Mr. Hallam's observation, who adverts to it in the History of the Middle Ages. 'Whether lord Bacon,' he says, 'ever read the Opus Majus I know not, but it is singular that his favorite quaint expression, prærogativæ scientiarum should be found in that work; and whoever reads the sixth part of the Opus Majus upon experimental science, must be struck by it as the prototype in spirit of the Novum Organum. The same sanguine, and sometimes rash confidence in the effect of physical discoveries; the same fondness for experiments; the same preference of inductive to abstract reasoning; pervade both works.

30. Bacon's alchemical work that has been

most spoken of, is the Mirror of Alchemy. To him has been ascribed the invention of gunpowder by some, while others have traced it to Bartholomew Schwartz, a German monk, who lived early in the fourteenth century. But, according to an Arabic writer in the Escurial collection, this composition was brought into Europe by the Saracenic invaders. It seems to be pretty well made out, that the use of gunpowder was known in the early part of the fourteenth century. Edward III. employed artillery with memorable effect at the battle of Cressy, and in the fifteenth century hand cannons and muskets came into use, and gunpowder was in common employ.

31. Contemporary with Bacon was Albert of Cologne, who was the inventor of the celebrated brazen head, which Dr. Aquinas, his pupil, demolished, in consequence of its being suspected to be an agent of the devil.

32. Albertus Magnus was said to be deeply skilled in alchemic lore, as was also Raymond Lully of Majorca, who died on his passage from Africa, in 1315, whither he had been to propagate the gospel. Lully is said to have converted iron into gold, in the presence of Edward I. in London. Arnold de Villeneuve prophesied that the world would come to an end in 1376. He was renowned as a physician and astrologer, as well as an alchemist; and Mariana and others ridiculously accuse him of magic.

33. The treatise on alchemy published at Paris in 1561, and attributed to Flamel, is said to be spurious. Flamel was thought to possess the secret, from his becoming suddenly, as it is said, very rich. He was celebrated also for his hieroglyphics, 'which are much of the same cast as those that now adorn Moore's Almanack, and quite as edifying.'

34. George Ripley figures in Salmon's collection as the author of the Marrow of Alchymy. He was a chemical poet, and Mr. Brande extracts the following stanzas from the preface to his Compound of Alchemie, dedicated to Edward IV.

But into chapters thys Treatis I shall devyde,
In number twelve, with dew recapytulatyon:
Superfluous rehearsalls I lay asyde,
Intending only to give trew informatyon,
Both of the theoryke and practycall operatyon;
That by my writyng who so will guyded be,
Of hys intente perfectly speed shall he.

The fyrst chapter shall be of naturall *Calcination*;
The second of *Dyssolution*, secret and phylosophycall;
The third of our elementall *Separation*;
The fourth of *Conjunction* matrimoniall;
The fyfth of *Putrefaction* then followe shall;
Of *Congelation Albyficative* shall be the sixt,
Then of *Cybation*, the seaventh, shall follow next.

The secret of our *Sublymation* the eyght shall show;
The nynth shall be of *Fermentatyon*;
The tenth of our *Exaltation* I trow;
The eleventh of our mervelose *Multiplycation*;
The twelfth of *Projection*, then recapytulatyon.
And so this treatise shall take an end,
By the help of God, as I intend

Thus here the tract of Alchemie doth end,
Which tract was by George Ripley, Chanon, penn'd.
It was composed, writt, and signed his owne,
In anno twice seaven hundred seaventy-one.
Reader, assist him, make it thy desire,
That after lyfe he may have gentle fire!

AMEN.

35. Failure after failure, although it might shake the faith placed in alchemy, did not prevent perseverance, and men still continued to act under the belief that eventual success would attend the great endeavour. Salmon's creed is that of most of his contemporaries; 'as to the great and philosophic work,' says he, meaning transmutation, 'it is my opinion and belief that there is such a thing in nature. I know the matter of fact to be true, though the way and manner of doing it is as yet hid from me. I have been eye-witness of so much as is able to convince any man, endued with rational faculties, that there is a possibility of the transmutation of metals; yet, for all these things, will not advise any man, ignorant of the power of nature, and the way of operation, to attempt the work, lest, erring in the foundation, he should suffer loss, and blame me. Without doubt it is a gift of God from above, and he that attains it must patiently wait the moving of the waters: when the destined angel moves the waters of the pool, then is the time to immerge the leprous metal, and cleanse it from all impurities.'

36. Van Helmont expresses himself on the same subject in the following words: 'I am constrained to believe in the making of gold and silver, though I know many exquisite chemists who have consumed their own and other men's goods in search of this mystery; and to this day we see these unworthy and simple laborers cunningly deluded by a diabolical crew of gold and silver sucking flies and leeches. But I know that many will contradict this truth; one says it is the work of the devil, and another that the sauce is dearer than the meat.'

37. Bergman, speaking of transmuting relations, says, 'although most of them are deceptive, and many uncertain; some bear such character and testimony, that unless we reject all historical evidence, we must allow them entitled to confidence.'

38. 'For my own part,' says Mr. Brande, 'the perusal of the histories of transmutation,' and, as far as we have perused them, we have formed the same judgment, 'appears to me to furnish solid grounds for a diametrically opposite opinion from that expressed by Bergman. The histories are all of a most suspicious character; sometimes the fraud was open and intentional, seconded by juggling dexterity; at other times the performers deceived themselves; they purchased what was called a powder of projection, prepared by the adepts, containing a portion of gold, and when they threw it into the fire with mercury, and found that portion of gold remaining in their crucible, they had not wit enough to detect its source. But the cases which are quoted as least exceptionable, are often exactly those which are really impossible. I mean where the weight of the powder of projection, and of the lead, or other base metal, taken conjointly, was exceeded

he gold produced. Such is Herne's
Paykul's transmutation, who, with
of lead and one of powder, produced
t was coined into 147 ducats; and
. But the most celebrated history
ation is that given by Helvetius, in
the Golden Calf; discovering the
le in nature, how, by the smallest
he philosopher's stone, a great piece
ead was totally transmuted into the
endent gold, at the Hague, in 1666.
is, says Mr. Brande, is a luminous
ll that has been done on this subject
ly abridge the proceedings. 'The
December, 1666, in the afternoon,
ger to my house at the Hague, in a
it, of honest gravity and serious
a mean stature, and a little long
ir, not curled, a beardless chin, and
our years (as I guess) of age, and
th Holland. After salutation, he
with great reverence to pardon his
, for he was a lover of the pyrotech-
having read my treatise against the
owder of Sir Kenelm Digby, and
doubt about this phylosophic mys-
him to ask me if I really was a
to the existence of an universal
h would cure all diseases, unless
parts were perished or the predes-
of death come. I replied, I never
adept, or saw such a medicine,
fervently praid for it. Then I said
a learned physician. No, said he,
founder and lover of chemistry.
from his bosom pouch a neat ivory
f it three ponderous lumps of stone,
bigness of a walnut. I greedily
led for a quarter of an hour this
stance, the value of which might
about twenty tons of gold; and
from the owner many rare secrets
le effects, I returned him this
sures with a most sorrowful mind,
hing him to bestow a fragment of
perpetual memory of him though
a coriander seed. No, no, said
lawful; though thou wouldst give
golden ducats as would fill this
uld have particular consequences,
d be burned of fire, I would at
ther cast it all into the fiercest
hen asked if I had a private
prospect was from the public
sently conducted him to my best
backwards, which he entered
in the true spirit of Dutch clean-
wiping his shoes, which were full
irt. I now expected he would
eat secret upon me, but in vain.
piece of gold, and opening his
me five pieces of that precious
wore upon a green riband, and
h excelled mine in flexibility and
ing the size of a small trencher.
again craved a crumb of the
st, out of his philosophical com-
gave me a morsel as large as a
I said this scanty morsel will

scarcely transmute four grains of lead. Then, said he, deliver it me back: which I did in hopes of a greater parcel; but he cutting off half with his nail said, even this is sufficient for thee. Sir, said I, with a dejected countenance, what means this, and he said even that will transmute half an ounce of lead. So I gave him great thanks, and said I would try it and reveal it to no one. He then took his leave and said he would call again next morning at nine. I then confessed that while the mass of his medicine was in my hand the day before, I had secretly scraped off a bit with my nail, which I projected on lead, but it caused no transmutation for the whole flew away in fumes. Friend, said he, thou art more dexterous in committing theft than in applying medicine; hadst thou wrapt up thy stolen prey in yellow wax it would have penetrated and transmuted the lead into gold. I then asked if the philosophic work cost much or required long time, for philosophers say that nine or ten months are required for it. He answered, their writings are only to be understood by the adepts, without whom no student can prepare this magistery. Fling not away therefore thy money and goods in hunting out this art, for thou shalt never find it. To which, I replied, as thy master showed it to thee, so mayest thou perchance discover something thereof to me, who know the rudiments, and therefore it may be easier to add to a foundation than begin anew. In this art, said he, it is quite otherwise; for unless thou knowest the thing from head to heel thou canst not break open the glassy seal of Hermes. But enough, to-morrow at the ninth hour I will show thee the manner of projection. But Elias never came again, so my wife, who was curious in the art whereof the worthy man had discoursed, teazed me to make the experiment with the little spark of bounty the artist had left me; so I melted half an ounce of lead, upon which my wife put in the said medicine, it hissed and bubbled and in a quarter of an hour the mass of lead was transmuted into fine gold, at which we were exceedingly amazed. I took it to the goldsmith, who judged it most excellent, and willingly offered fifty florins for each ounce.' Such adds Mr. Brande, is the celebrated history of Elias the artist, and Dr. Helvetius.

40. Evelyn in his diary mentions that Sir Kenelm Digby gave him a certain powder 'with which he affirmed he had fixed mercury before the late king. He advised me to try (says Evelyn) and digest a little better, and gave me a water which he said was only rain water of the autumnal equinox exceedingly rectified and very volatile; it had a taste of strong vitriolic, and smelt like aqua-fortis. He intended it for a dissolvent of calx of gold; but the truth is Sir Kenelm was an arrant mountebank.'

41. Descartes is said to have supported the opinion that life might be prolonged for a very considerable period; this opinion would seem to imply a belief in the discovery of some philosophical process or specific, but says our author his plan seemed to be the very rational one of limiting all excess of diet, and enjoining punctual and frugal me

42. Elias Ashmole published, in 1652, his Theatrum Chemicum Britannicum, containing several Poeticall Pieces of our famous English philosophers who have written the Hermetique Mysteries in their own ancient language. The most remarkable piece in this collection is the Ordinall of Alchimy, by Thomas Norton, illustrated by several comical cuts. It treats, in separate chapters, of the objects of the occult science; of the difficulties of attaining them; of the different methods of pursuing them; of the characters of the elements; and of the five concords, of which the first is patience, the second assistance, the third instruments, the fourth situation, and the fifth planetary influence. It is difficult to select from this production any specimen capable of conveying an idea of its merits, that can come within the limits of a quotation. Perhaps the following lines picked out of the second chapter, touching 'the Regiment of Fiers' may serve to convey some idea of the author's talents in the double capacity of poet and philosopher.

In many authors written you may see,
Totum consistit in ignis regimine;
Wherefore in all things so proceed,
That heat work no more, no less than it need;
Wherein many of Geber's cooks
Deceived were, though they be wise in books.
Such heate wherewith a pig or goose is scalded
In this arte *Decoction* it is called;
Such heate as dry the lawne karchiefs fair,
In thirty operations serveth for our ayre;
But for divisions you must use such heate,
As cooks make, when they roast raw meat.
Ignis humidus, another fier alsoe
Is, and yet seemeth *oppositum in adjecto*;
Another fier, is fier of dessication,
For matters which be imbibed with humectation.
Ignis corrodens serveth in this arte,
Elementa propinqua wisely to depart.
By one point of excess all your work is shent,
And one point too little is insufficient;
Who can be sure to find its trew degree.
Majister magnus in igne shall he be.
All that hath pleasure in this booke to reade,
Pray for my soule, and all both quick and deade.
In this year of Christ 1477,
This work was begun, honor to God in heaven.

43. Some few believers in transmutation have been found in later times. Dr. Price of Guildford, in the year 1782, professed to convert mercury into silver and gold by means of a white and a red powder, and is said to have convinced many disbelievers of the possibility of this change: his experiments were to have been repeated before an adequate tribunal, but he put a period to his existence by swallowing laurel water.

44. Peter Woulfe, who died so late as 1805, and who is the author of several papers in the Philosophical Transactions, was a believer in the mysteries of the transmuting art. He had long vainly searched for the elixir, and attributed his repeated failures to the want of due preparation by pious and charitable acts. And a few other persons, adds Mr. Brande, of less note might be quoted as believers in transmutation, but the history of one is that of all: and in the emphatic language of Spenser, they were doomed

To lose good days that might he better spent,
To waste long nights in pensive discontent;
To speed to day, to be put back to morrow,
To feed on hope, to pine with fear and sorrow;
To fret their souls with crosses and with cares,
To eat their hearts, through comfortless despairs:
Unhappy wights! born to disastrous end,
That do their lives in tedious tendance spend.

45. But although the alchemists have given us little in the way of useful facts, or applicable discoveries, their reign was fruitful in the invention of apparatus. Alembics, stills, retorts, receivers, and a variety of whimsical and complex vessels, in glass and porcelain, are described and depicted in their works; and they not only possessed all the furnaces with which our modern laboratories are necessarily supplied, but were particularly expert in their construction, and often surprisingly happy in their invention, and in this way the beau idéal of their strange anticipation has worked good to their posterity.

46. Contemporary with the alchemists lived other men, whose pursuits were conducted upon more rational principles; and although, in the writings of these individuals, you sometimes meet with matter indicating the complexion of the times in which they wrote, and tinctured with astrological, and magical, and alchemical notions, yet, compared with the men who have just passed before us in review, they were enlightened philosophers and sober reasoners; these often, says Mr. B., indulged in the insane caprices of the mere searchers of the philosopher's stone, but their madness had method in it, and their wanderings were not without a plan.

47. Of these persons, the first which our author selects, is Basil Valentine, of Erfurth, who wrote about the middle of the fifteenth century, and who may justly be considered as one of the founders of modern chemistry: his experiments always had an object, and he details them with intelligible perspicuity; it is true that he often launches into the sea of alchemy, but he returns unpolluted by its follies; when he speaks as an adept he is as absurd as need be, but as the narrator of experiments he abounds in shrewd remarks, and was uncommonly successful in his pursuits. The extant works of Valentine are not very numerous, and they have mostly become extremely scarce. In 1671 his Triumphant Chariot of Antimony was republished at Amsterdam, from the original edition of 1624, with copious notes, by Dr. Theodore Kirkingius; and, a few years after, an English translation of that celebrated production was printed at London. In 1644 his Haliographia appeared at Bologna. This work treats of the preparation, uses, and virtues of mineral, animal, and vegetable salts, and is a curious and well-digested body of information upon a variety of chemical subjects. In both these works Valentine appears in the double capacity of chemist and physician. In physic he was a brave champion for the chemical sect, and, in his Triumphant Chariot of Antimony, especially, abounds in reflections, not of the mildest description, upon the practice and theories of his adversaries, whom he despises, because unable to prepare their own medicines,

To lose good days that might be better spent,
To waste long nights in pensive discontent;
To speed to day, to be put back to morrow,
To feed on hope, to pine with fear and sorrow;
To fret their souls with crosses and with cares,
To eat their hearts, through comfortless despairs;
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'they know not whether they be hot or dry, black or white; they only know them as written in books, and seek after nothing but money. Labor is tedious to them, and they commit all to chance; they have no conscience, and coals are outlandish wares with them; they write long scrolls of prescriptions, and the apothecary thumps their medicine in his mortar, and health out of his patient.'

48. In the Currus Triumphalis is, however to be found much useful matter. To Valentine we owe the first accurate mention of, and intelligible directions for, the preparation of nitric, muriatic, and sulphuric acids. His process for obtaining the water of nitre, as he terms the acid, viz. that of distilling three parts of powdered earthen-ware with one of nitre, is still followed in some countries, and the acid it affords is sufficiently pure. It was supposed, by the old chemists, that the clay in this process held down the nitre so as to expose it to the searching influence of the fire; but the decomposition, and consequent production of the acid, depends upon the attraction of the potash of the nitre for the ingredients of the clay.

49. Another process mentioned by Valentine, though this seems to have been known to Raymond Lully, is much nearer that at present in use. It consists in distilling equal parts of nitre and dried green vitriol. The residue consists of sulphate of potass and oxide of iron; the former may be separated by washing with hot water, and an oxide of iron of a deep red color remains, used by the polishers of plate glass under the name of colcothar.

50. In the Haliographia a third process is mentioned, which consists in distilling salt-petre with finely powdered flints. In this case the silica combines with the potass, and the acid is disengaged.

51. This water, or acid spirit of nitre, was afterwards called aqua-fortis, and its true nature and chemical history made but little advance until the researches of Priestley and Cavendish, which were commenced about the middle of the last century.

52. The method which in this country is now resorted to, for the production of aqua-fortis, consists in the decomposition of nitre by sulphuric acid; the results are liquid nitric acid and sulphate of potash.

53. To Basil Valentine seems due the honor, also, of discovering the oil of vitriol, or, as it is now called, sulphuric acid. It is in the Haliographia that oil of vitriol is distinctly mentioned, 'and what,' says Mr. Brande, 'is curious, we find, in the chapter of that tract relating to the extraction of the salts of iron, particular directions for the preparation of the sulphate of iron, by dissolving iron filings in a mixture of one part of oil of vitriol and two of water; this solution,' he says, 'when put aside in a cool place, soon forms beautiful crystals;' and in another section we are told, that 'this salt is an excellent tonic, that it comforts weak stomachs, and that, externally applied, it is a valuable styptic;' and this, in fact, is nearly all that we can say of the preparation and medical uses of this salt of iron at the present day.

54. The mode of obtaining sulphuric acid, by the distillation of sulphate of iron or green vitriol, is still extensively practised upon the continent, in Germany, Sweden, and more especially at Bleyl in Bohmia. The vitriol is first deprived of its water of crystallisation and then submitted, in glass retorts coated with clay, to a red heat; white fumes pass over into the receivers which become very hot during the condensation of these fumes into an unctuous reddish-brown fluid, which, from its viscidity and appearance, acquired the name of oil of vitriol; there remains in the vessels a substance of a fine red color, which, when washed and levigated, furnishes what has been termed colcothar, or caput mortuum, of vitriol; for the old chemists were in the habit of representing the dregs and last products of substances by the symbol of a death's head and cross bones.

55. The oil of vitriol, thus prepared, exhales fumes when exposed to a moist atmosphere, and occasionally congeals or crystallises; circumstances which led to its name of glacial oil of vitriol, and which show that it differs from the acid as ordinarily prepared.

56. That sulphur, during combustion, produces a portion of acid water, seems to have been known at a very early period; but the method of obtaining sulphuric acid, by burning a mixture of sulphur and nitre, was first, it appears, described by Valentine in his Chariot of Antimony, under the name of oil of antimony, for he employed sulphuret of antimony for its production. The original recipe runs thus:—'Take of antimony, sulphur, salt-nitre, of each equal parts, fulminate them under a bell, as oil of sulphur per campanum is made, which way of preparation has long since been known to the ancients, but you will have a better way if, instead of a bell, you take an alembic, and apply to it a recipient; so you will obtain more oil, which will indeed be of the same color as that made of common sulphur, but in powers and virtues not a little more excellent.'

57. Dr. Ward, the inventor of many celebrated nostrums, was the first person who brought this preparation into notice in England; and he obtained a patent for his invention, and for a considerable time monopolised the manufacture of the acid. At length Dr. Roebuck, an eminent physician of Birmingham, substituted an apparatus of lead for the glass vessels previously used. This was in 1746, since which the price of the acid has been greatly reduced, and the manufacturer consequently enabled to employ it for a variety of purposes to which it was previously inapplicable from its scarcity and high price In 1772 the first manufactory of sulphuric acid, near the metropolis, was established by Messrs. Kingscote and Walker at Battersea.

58. To Valentine, it has been said, was known the necessity and advantage of nitre, as an addition to sulphur, in increasing the acid product; but the manner in which nitre operates is a later discovery. It has been supposed merely to furnish oxygen, but that this is not the case is proved by sulphurous, and not sulphuric, acid being the result of burning sulphur in pure oxygen. The solution of this chemical problem has been chiefly

effected by the researches of Sir H. Davy, who has proved that the products of the nitre are concerned in transferring oxygen to the sulphur. A patent has, however, lately been taken out for a mode of preparing sulphuric acid by the combustion of pyrites, without the intervention of nitre, which promises perfect success.

59. The numerous antimonial preparations described in the Chariot of Antimony, deserve more notice than they have generally received from the chemical historian; and the perusal of that work affords some insight into the celebrated disputes between the galenical and chemical physicians, which were afterwards pushed so far by Paracelsus.

60. Of this extraordinary man, Paracelsus, the following account is given by our author. His real name was Philip Hochener, which he changed on commencing his professional career into Theophrastus Bombastus Paracelsus. At an early age he visited the most renowned towns in Europe, and returning to his native country was made professor of medicine and chemistry at Basle; he availed himself of his public situation, not to instruct the unlearned, but to vilify his contemporaries and predecessors. It is generally said that his dissolute manners and intractable temper obliged him to quit his occupation. But others have told a more plausible story: a rich Canon fell sick, and getting frightened, offered 100 florins to any one who could cure him. Paracelsus administered three pills, and the Canon got well; but being so soon restored, and by such simple means, he refused to fulfil his promise. The matter was brought before a magistrate, who decreed that the doctor should only recover the customary fee. Irritated at the flimsy excuses and unpardonable ingratitude of the priest, and at the magistrate's partial decision, Paracelsus declared that he would leave the inhabitants of Basle to the eternal destruction which they deserved; he then retired to Strasburg, and thence into Hungary, where he took to drinking, and died in great poverty at Saltzburg in 1541, and in the forty-third year of his age. Though we can fix upon no particular discovery upon which to found his merits as a chemist, and though his writings are deficient in the acumen and knowledge displayed by several of his contemporaries and immediate successors, especially by Theodore de Mayerne and Du Chesne, or, as he was generally called, Quercitanus, it is undeniable that he gave a most important turn to pharmaceutical chemistry; and calomel, first described by Crollius in 1609, with a variety of mercurial and antimonial preparations, as likewise opium, came into general use. Although the chemical physicians, however, were very successful, they were aware of the unpopularity of their means; people were frightened at the idea of mercury and antimony, which were accordingly exhibited under fantastic and assumed names. Towards the end of the fifteenth century the use of antimony was prohibited at Paris; and Besnier expelled the faculty for having persevered in administering it. In England chemical medicines began to be employed in the reign of Charles I. In 1644 Schröder published his Chemico-medical Pharmacopœia; and, shortly after, that of the London College made its appearance; but, although the history of pharmaceutical chemistry must not be blended with the abstract progress of the science, yet should it not be forgotten that the great modern improvements in chemistry have sprung from its application to medicine, and that the foundations of chemical science are to be found in the medical and pharmaceutical writers of the sixteenth century, who rescued it from the hands of the alchemical pretenders, and gave it a place and character of its own.

61. Van Helmont now appeared on the field of science, and Mr. Brande, in that part of chemical history which leads him to the mention of this celebrated philosopher, takes occasion to present the following extract from his work, as illustrative of the style and pursuits of their author:—'In 1594,' says Van Helmont, 'I finished my courses of philosophy, but upon seeing none admitted to examinations at Louvain who were not in a gown and hood, as though the garment made the man, I was struck with the mockery of taking degrees in arts. I therefore thought it more profitable seriously and conscientiously to examine myself: and then I perceived that I really knew nothing, or, at least, nothing that was worth knowing. I had, in fact, merely learned to talk and to wrangle, and therefore refused the title of master of arts, finding that nothing was sacred, nothing true; and I was unwilling to be declared master of the seven arts when my conscience told me I knew not one. The Jesuits, who then taught philosophy at Louvain, expounded to me the disquisitions, and secrets of magic, but these were empty and unprofitable conceits; and instead of grain I reaped stubble. In moral philosophy, when I expected to grasp the quintessence of truth, the empty and swollen bubble snapped in my hands. I then turned my thoughts to medicine: and, having seriously read Galen and Hippocrates, noted all that seemed certain and incontrovertible; but was dismayed upon revising my notes, when I found that the pains I had bestowed, and the years I had spent, were altogether fruitless; but I learned, at least, the emptiness of books, and formal discourses and promises of the schools. I went abroad, and there I found the same sluggishness in study, the same blind obedience to the doctrines of their forefathers, the same deep-rooted ignorance.'

62. The elemental doctrine was now in full vogue; and salt, sulphur, and mercury were talked of as the ultimate parts of matter. In the writings of Van Helmont we find allusions to the existence of aeriform fluids; and the word gas first occurs in his pages. He even distinguishes between condensible, and permanently elastic, fluids; and his gas sylvestre seems to be what was subsequently termed fixed air, the carbonic acid gas of modern times. The weight and elasticity of the air seem to have been appreciated and well argued upon by Van Helmont; and he has detailed the effect of temperature and pressure in reference to atmospheric condition.

63. The historian of chemical discoveries and improvements has now arrived at the middle of

the seventeenth century; and, among the writers of his time, Glauber of Amsterdam stands out conspicuous. He was not a mere experimenter, but a sensible and acute reasoner. In consistency with the fashion of the age, he depreciated the labors of others, and talked too presumptuously and egotistically of his own claims to attention; but, in spite of these drawbacks, we find a great deal to admire and to praise in the writings of this chemist.

64. The distillation of volatile alkali from bones, and its conversion into sal-ammoniac, by the affusion of spirit of salt; the preparation of sulphate of ammonia, which he calls secret sal-ammoniac, and its conversion into common sal-ammoniac by distillation with common salt; the production of blue vitriol by the action of acid of vitriol upon the green rust of copper; the distillation of vinegar from wood, and the formation of a variety of salts, useful in medicine and the arts, by its action upon alkaline, earthy, and metallic substances; the distillation of muriatic acid, or spirit of salt, from a mixture of common salt and acid of vitriol; and the extraction of sulphate of soda, or sal mirabile, from the residue of this experiment, are a few, and only a very few, of the truly important inventions and discoveries that crowd upon us in the perusal of the verbose pages of Glauber. Of these, the production of vinegar of wood, and of muriatic acid, may perhaps be regarded as of the greatest interest and importance.

65. The acid liquor produced during the destructive distillation of wood, has lately become a manufacture of much importance, and is prepared by the makers of gunpowder, who obtain it as the result of their process for procuring charcoal.

66. Glauber describes the distillatory apparatus, which he calls a press for extracting the juice of wood; he shows its condensation into an acid liquor, and directs the method of burning lime by ranging layers of chalk alternately with those of the wood. He also says that, by rectifying this spirit, 'a sharp hot oil of a dark reddish color remains, and the vinegar passes over fit for the preparation of medicines, and all other uses to which vinegar is applicable.' The oil, he says, is an admirable preservative of wood, and, when saponified with alkali, forms a most valuable manure; 'a hogshead of which may be carried into fields and vineyards, far remote, more easily than ten loads of common manure, which is carried to vineyards, in rocky places, with great difficulty. As to the spirit, physicians may use this noble and efficacious juice, with great honor and profit, in the cure of many diseases hitherto incurable;' and he highly extols an acid bath made by due admixture of the vinegar of wood with warm water; he also shows the mode of concentrating it by exposure to cold, when 'the phlegm only freezeth, but the sharp spirit remaineth in the middle of the hogshead, so sharp that it corrodeth metals like aqua-fortis.' After many other shrewd and clever remarks, respecting the tar of wood and its acid, Glauber closes his discourse, fearing that it will not be believed by many, which he says he cannot help; 'it contenteth me that I have written the truth, and lighted a candle to my neighbours.'

67. The preparation of muriatic acid, as now commonly conducted, was first directed by Glauber; he obtained it by distilling common salt with acid of vitriol, and gives a sufficiently clear account of the nature of the chemical change that ensues. The residue of this operation retains to this day the name of Glauber's salt, or, as he termed it, sal mirabile. Upon its virtues he has descanted at great length, and though, in his history of this salt, its value and uses are preposterously exaggerated, his observations serve to show the diligence and acuteness with which he investigated its applications, and offer proofs of the extensive information which he possessed, relative to many processes of agriculture and the arts. Salt, in short, was Glauber's favorite element. 'It is,' says he, 'the beginning and end of all things, and it increaseth and exalteth their powers and virtues; it is the true universal medicine; not that I would have any man persuade himself that in these words I would assert immortality, for my purpose tendeth not thither, seeing that I am not ignorant there is no medicine against death.' And then, adverting to the opposition to chemical medicines by contemporary physicians, he advises them not to envy those who have received such divine gifts as his wonderful salt, nor to provoke the innocent with their filthy calumnies and slanders, but to leave those things which exceed their capacities. 'Nothing,' he says, 'can extinguish truth; it may be prest but cannot be overcome; like the sun's light it may be hidden but not extinguished.'

68. The directions he gives for the preparation of the sal mirabile, and the account of its properties, are in general very correct. 'Its color ought to be white and transparent; its figure is in long striæ of crystals; its taste is like ice melting upon the tongue, and yields some bitterishness. Being dried in the fire, and all the moisture gone off, it will lose about three parts of its own body, and retain a fourth part only; being dissolved in water it will recover those three parts again. But, on the contrary, if it shoot into a square figure, and has as yet a saltish taste, and being dried loseth but little of its weight, it is not worth a rush, and shows that either the oil of vitriol was not good, or not enough of it used in the operation. These things we would not bury in silence, that so we might well advise young beginners, and withdraw them from their errors.'

69. The present mode of preparing muriatic acid is almost exactly that devised by Glauber. In its pure state it was first obtained and examined by Dr. Priestley. The composition of this acid is a discovery of more modern date. The investigation which led to it was commenced by Scheele, and perfected by our contemporaries, Gay Lussac and Davy.

70. Glauber has great merit as an inventor and improver of chemical apparatus, much of which is depicted in the plates attached to his works. The form of distillatory vessels, commonly called Woulfe's apparatus, is found in Glauber's chemical furnaces; and he contrived a very ingenious mode of heating large vessels of water by steam, and with great economy of fuel, a method now often resorted to.

89. And again, where he especially comes in contact with Mayow, he says, 'when spirit of vitriol, poured upon common salt or salt-petre, makes an ebullition, and affords on distillation the muriatic and nitric acids, the acid part of the spirit of vitriol staying behind, does not this argue that the fixed alkali in the common salt and salt-petre attracts the acid spirit of the vitriol more strongly than its own spirit, and, not being able to hold them both, lets go its own. How these attractions may be performed,' continues Newton, 'I do not here consider; what I call attraction may be performed by impulse, or by some other means unknown to me: I use that word to signify any force by which bodies tend towards one another, whatever be the cause.' Thus, he says, 'muriatic acid unites to salt of tartar by virtue of their respective attractions; but when oil of vitriol is poured upon this compound the former acid is displaced by the superior attraction of the latter. Silver is separated from aqua-fortis by quicksilver, quicksilver by copper, and copper by iron; which argues that the acid particles of the aqua-fortis are attracted more strongly by iron than by copper, by copper than by quicksilver, and by quicksilver than by silver.

90. Thus, then, chiefly by the experimental labors of Mayow, and the sagacious views of Newton, the old and prevailing notions of atomic forms of bodies, the hypothesis of hooks, rings, points and wedges, by which the component parts of bodies were supposed to be held united, gave way to the simple and independent expression of facts.

91. We now proceed to give, from Mr. Brande, an outline of the doctrines of chemical attraction, from the time of Mayow to the present period. In 1718 Geoffroy invented those tables of affinity which are given in elementary works, and which have certainly proved of service in extending chemical knowledge; he considered the order in which bodies separate each other from a given body as permanent and constant. Thus, he thought, the metals were always separated from acids by the absorbent earths, these by volatile alkali, and the volatile by the fixed alkalis; to represent, therefore, the attraction of acids for these substances, he placed them at the head of a column, with the other bodies beneath in the order of attraction :—

ACIDS.
Fixed alkalis.
Volatile alkali.
Absorbent earths.
Metals.

92. He then constructed a column for each particular acid; thus the table for nitric acid, taken from Newton's experiments, would stand as follows :—

NITRIC ACID.
Fixed alkali.
Volatile alkali.
Earths.
Iron.
Copper.
Lead.
Mercury.
Silver.

93. Gilbert and Limbourg, in 1751 and 1758, extended, and in some respects improved, these tabular representations of the results of attraction; but no considerable progress was made in the investigation connected with the subject until Bergman published his dissertation upon it, in 1775. Bergman was born in Sweden in 1735, and died in 1784.

94. Bergman named affinity elective attraction. He considered that every substance possessed a peculiar attractive force for every other substance with which it combines, a force capable of being represented numerically: he regarded decomposition as complete; that is whenever a third body, *c*, is added to a compound, *a*, *b*, for one of the constituents of which it has a stronger attraction than that which already exists between them, the compound will be decomposed and the whole of one of its elements transferred to the added body. Thus suppose the attraction of *a* for *b* to be represented by 1, and of *a* for *c* by 2, then the addition of *c* to *a b* will produce the compound *a c*, and *b* will be separated. When lime water is added to nitrate of magnesia the latter earth is precipitated, and the former combines with the nitric acid. Hence nitric acid, poured upon a mixture of lime and magnesia, dissolves the former in preference to the latter earth.

95. The observation of these facts led Bergman to call this kind of attraction elective, and he has given tables showing these relative attractions of bodies both in the dry and humid way.

SILVER.	OXIDE OF SILVER.
Lead.	Sulphuric acid.
Copper.	Oxalic.
Mercury.	Phosphoric.
Bismuth.	Nitric.
Tin.	Tartaric.
Gold.	Citric.

96. Bergman's opinions relative to affinity were generally admitted as correct, and considered as standard authority, till Berthollet published his work on Chemical Statics, in 1803, in which he endeavoured to revive, under a new aspect, some of the old chemico-mechanical doctrines, and to prove that the forms of the acting particles and their magnitude, or masses of matter, were concerned in influencing the results. Though these doctrines may now be considered as exploded, they had many advocates, and were rapidly gaining ground, until the promulgation of the theory of definite proportionals. The experiments adduced by Berthollet in support of his hypothesis appeared at first very satisfactory; but upon minute inspection they are found to have their weak points, and many of the errors into which they led have been successfully unravelled by professor Pfaff of Kiel, by Sir H. Davy, and others. In illustration of the agency of the mass of matter, Berthollet has adduced the mutual action of sulphate of potassa and baryta: when 'solution of baryta is added to sulphate of potassa potassa is liberated, and sulphate of baryta is formed and precipitated insoluble; but if a large quantity of potassa be added to a small quantity of sulphate of baryta the mass will,' according to Berthollet, 'prevail over what ap-

to each acid, and to each base, indicating the weight of it which will saturate the numbers attached to all the other acids and bases. Upon this principle elementary works on chemistry contain tables of the representative numbers of bodies; and, upon the same principle, Dr. Wollaston, in the Philosophical Transactions of 1814, by adapting such table of number to a moveable scale, on the principle of Gunter's sliding rule, has constructed the logometric scale of chemical equivalents, which is so important and valuable an instrument to the practical chemist.

162. Mr. Higgins, in 1789, in his Comparative View of the Phlogistic and Antiphlogistic Theories, and Mr. Dalton, in 1804, in his New System of Chemical Philosophy, called the attention of chemists to the definite proportions in which bodies unite, that form several compounds. Thus, seventy parts of potash unite to thirty of carbonic acid, and to sixty, but not to any intermediate proportions. If we represent the weight of nitrogen by thirteen, it will form the following compounds with oxygen:

Nitrous oxide	13	+	7,5 oxygen.
Nitric oxide	13	+	15
Hyponitrous acid	13	+	22,5
Nitrous acid	13	+	30
Nitric acid	13	+	37,5

163. Similar observations apply to all other bodies; and it was hence that Mr. Dalton was induced to assert, that these proportional numbers represent the respective weights of the atoms of combining bodies; and one atom of nitrogen was said, in the above case, to combine with one, two, three, four, or five atoms of oxygen.

164. In selecting the body which should be assumed as unity in this numeric representation, Mr. Dalton adopted hydrogen; and I, says Mr. Brande, am induced for several reasons to follow his example, though there is weighty authority in favour of oxygen. It will be seen, by reference to the article Atomic Theory, that Dr. Henry expresses a wish that a general agreement should have obtained among chemists respecting the assumed unit; he moreover says, and very justly, it is extremely desirable that chemical writers should employ a uniform standard of comparison.

165. Mr. Brande concludes this section of his history by noticing the extension which Gay Lussac has proposed of definite proportions to aeriform bodies, considering these as determinable by volume, a view, he says, which clashes with parts of Mr. Dalton's atomic hypothesis, but which may be adopted, independent of hypothetical views, as a beautiful expression of facts.

166. From a review of the preceding details, the reader may form some notion of the state in which the science of chemistry existed at the end of the seventeenth century; and by comparing the theories of the French school, which we shall soon have to notice, with the suggestions of Mayow and Hooke, more especially in relation to combustion and acidification, it will be seen how nearly the individuals just named approached to that explanation of laws and cir-

cumstances which was afterwards more unequivocally proposed by Lavoisier and his followers. See Acid and Combustion.

107. Though something is at least due to Mayow, we must in justice, says Mr. Brande, confer the merit of founding pneumatic chemistry upon Dr. Stephen Hales, who was born in Kent, 1667, whose researches came before the public very early in the last century. 'He refused a canonry of Windsor, that he might continue to devote himself to his parochial duties, and favorite scientific pursuits; and as piety, truth, and virtue, were the principles of his character, he lived in universal esteem to the age of eighty-four, dying at Teddington, on the fourth of January, 1761, where he was buried under the church-tower, which he had rebuilt at his own expense.'

108. Dr. Hales employed several methods of collecting and examining the gaseous products of a variety of bodies, many of which are nearly similar to those in present use, and in prosecuting his enquiries he stumbled upon a variety of curious facts and observations; but having unluckily predetermined that the various products formed were mere modifications and contaminations of common air, he let slip a numerous series of discoveries, once fairly within his grasp, and which were afterwards eagerly amassed, and successfully reasoned upon by Priestley and his contemporaries.

109. In the article Air will be found a statement of the experiments and reasonings of Dr. Hales; and the reader, by turning to the thirty-second, and few following sections of that article, will save us the necessity of repeating it here. We shall, therefore, in the present instance, confine ourselves to copying what Mr. Brande says of this chemist, and of his contemporary Boerhaave, in concluding the seventh section of the historical investigation under notice.

110. When it is recollected, says Mr. B. that Hales wrote at the commencement of the last century, that there were then very few models of scientific composition extant that were worth copying, and that a pompous and obscure style of writing was very prevalent among his experimental contemporaries, we cannot but admire the perspicuous and unadorned manner in which he details his facts and observations; he has all the merit in this respect that belongs to Boyle without his diffusiveness; and a pleasing vein of sound and unaffected morality accompanies his argument, and leads him whilst endeavouring to unveil the mysteries of nature to direct our attention with becoming modesty to the penury of man's wisdom, when compared with the admirable adjustment of causes and effects discoverable in her lowliest works.

111. Contemporary with Hales was the celebrated Boerhaave who was born near Leyden 1668, and died 1738. He was a man who laid medicine and chemistry under deep obligations; the former by his successful practice, and happy method of instruction; the latter by diligently experimenting on some of its most difficult departments. 'He prosecuted chemistry' says Dr. Johnson, 'with all the ardor of a philosopher whose industry was not to be wearied, and whose love of truth was too strong to suffer him to acquiesce in the report of others.'

112. Boerhaave's original chemical investigations were nearly of the same nature as those of Hales; he experimented upon the gaseous products afforded by a variety of vegetable and animal substances; he attributed the elasticity of air to its union with fire, and considered its ponderable matter as susceptible of chemical combinations. In disclosing these views he has certainly sketched an outline of one of the modern theories of combustion, but he went no further, and was not more successful than Hales in discriminating between common air and the various gaseous products that resulted from some of his experiments. His writings are enumerated in chronological order in the masterly sketch of his life written by Dr. Johnson; 'they have,' says his biographer, 'made all encomiums useless and vain, since no man can attentively peruse them without admiring the abilities and reverencing the virtues of the author.' His only chemical work, entitled, Elementa Chemiæ, was first published in 1732. It contains a useful essay on the history of the science.

113. We have now arrived at the æra when chemistry 'assumed a more important and interesting aspect,' and should proceed in order to detail the two leading and most important discoveries of Dr. Black, had this not already been done in the article Air, to which we again refer our readers. In the thirty-seventh and following sections of that article will be found an account of these discoveries, which most certainly cleared the ground for the erection of the Lavoisierian theory, and the reader, by continuing to read the pages to which we now refer, will also be furnished with materials for appreciating the labors of Dr. Priestley, as contributing to the establishment of pneumatic chemistry. The discoveries of this philosopher, says Mr. Brande, are second in importance to none that had been previously made, and barely inferior to those that have adorned the recent progress of chemistry. We can scarcely call him the founder of pneumatic chemistry, after perusing the works of Hales and Black; but he achieved more in that new department of the science than any of his predecessors or contemporaries; and though on some points anticipated, his claims to originality are on others quite unequivocal. He cannot be called the discoverer of nitrous gas, for it is noticed by Mayow; yet he developed its principal properties, pointed out its useful eudiometrical applications, and showed many new modes of obtaining it. He has been stigmatised as a defender of the unintelligible system of phlogiston, and he did defend it with unpardonable pertinacity; but when we reflect that equally erroneous theories have been as warmly espoused in our own days, by men who in no respect are to be considered as inferior to our author, we must not impeach his discernment upon so flimsy an accusation. When we consider his numerous and, as it were, incompatible occupations, and remember the many channels into which his exertions were occasionally diverted, we presently detect the source of that wavering of opinion and

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unsteadiness of research, that his philosophical pursuits display. His experiments were almost always submitted to the public in a crude and undigested form, for he had no time to build them into theories, or concoct them into generalisations, and it is perhaps as well that he had not, for the bent of his mind was evidently such as to shine in experiment rather than argument.

114. Bergman is here again to be noticed, and his researches dwelt upon with some degree of minuteness; researches, says our author, which always appear to have been made with an object in view, and there is an unity of design in his philosophical papers which pleasingly distinguishes them from the undigested chaos of experiments and observations which we are obliged to wade through in preceding authors. Bergman was born in Sweden in the year 1735 and died in 1784.

115. It is upon his analytical talents, says Mr. Brande, that I prupose to dwell; it is there that he was pre-eminently original and successful, and upon that foundation his character as a chemist may be safely built.

116. The use of tests for the discovery of certain substances held in aqueous and other solutions, was first particularly dwelt upon by Boyle, and he was sometimes very fortunate in their contrivance and applications. He noticed the conversion of certain vegetable blues to red by acids, and to green by alkalis; the cloudiness produced by common salt in solution of silver, and the discoloration by liver of sulphur; and several other circumstances connected with the detection of certain principles by chemical re-agents.

117. In 1667 Du Clos undertook an examination of the waters of France; and in 1686 Hierne published some clever experiments upon the same subject in Sweden. In these writers the use of galls for the detection of iron is alluded, to and the necessity pointed out of examining the residuary product of evaporation.

118. In 1726, and 1729, Boulduc used spirit of wine to precipitate certain saline bodies insoluble in that menstruum. In 1755 Venel pointed out the existence of fixed air in the waters of Seltzer, Spa, and Pyrmont. Lane in 1769 shewed the method of imitating chalybeate springs, and in 1772 Dr. Priestley published directions for saturating water with fixed air.

119. Bergman, in his Essay on Mineral Waters, after adverting to a variety of circumstances relating to their general characters and sources, proceeds to point out, in the seventh section, the principal re-agents and precipitants useful in their examination, and to describe the nature of their changes and indications, with useful precision, in the following order:—

120. A. Infusion of litmus, or turnsole, is so delicate a test for the acids, that a single grain of sulphuric acid reddens 408 cubic inches of the blue tincture.

Paper dipped in this tincture and reddened by distilled vinegar, has its blue color restored by alkalis; but the tincture is more sensible than the paper, for the latter is not reddened by aërial acid (fixed air), yet one part of water saturated with aërial acid, renders fifty parts of the infusion red.

121. B. Tincture of Brasil-wood becomes blue by alkalis, and is sensible to less than one grain of crystallized soda in 4000 of water.

122. C. Turmeric, either on paper or in watery tincture, is a good, but less sensible test for alkalis, which render it brown.

123. D. Tincture of galls discovers iron by a purple or black cloud.

124. E. Prussiate of potash produces a blue tinge in water containing a minute portion of iron; it also precipitates other metals; copper brown; manganese white.

125. F. Sulphuric acid forms a white precipitate in all solutions containing baryta. If it produce bubbles it indicates some combination of aërial acid. Nitric acid is highly useful for showing the presence of sulphur, which it precipitates from all hepatic waters.

126. G. Oxalic acid detects the minutest quantity of lime by producing a white cloud, either immediately or after some hours. This test shows that scarcely any water is free from lime; and the purest within twenty-four hours deposits a portion of oxalate of lime, although sometimes so sparingly as to escape observation, unless lines be drawn on the bottom of the vessel with a glass rod, in the direction of which the precipitate attaches itself.

127. H. Aërated fixed alkali, throws down the metals and earths; if the substance be easily soluble in aërial acid, the caustic alkali may be used.

128. I. Aërated volatile alkali, also throws down earths and metals, and is an excellent test for the presence of copper, which it indicates by a blue color, more or less intense according to the quantity of alkali added.

129. K. Lime water detects aërial acid (it should be recollected that carbonic acid, or fixed air, is always meant by this term) by a precipitate of aërated lime.

130. L. Muriate of baryta forms an insoluble white precipitate in water, containing any soluble vitriolic salt; twelve grains of crystallied Glauber's salts dissolved in a kanne of distilled water (about three quarts) immediately exhibits white striæ on the application of this test. Even one grain in the kanne exhibits a white cloud after some hours, and as it only contains 0,26 grains of sulphuric acid, we may judge of the nicety of this precipitant, which even exceeds turnsole itself in sensibility.

131. M. Muriate of lime may be used for the detection of fixed alkali, but it is an ambiguous test, because if sulphate of magnesia be present it produces gypsum.

132. N. Solution of alum is also of little use, though occasionally employed as a test for alkalies.

133. O. Nitrate of silver is a certain and delicate indicator of muriatic acid, and its combinations. A grain of common salt in a kanne of water is instantly rendered evident by white streaks. Under some circumstances it may also form a precipitate with sulphuric acid, but sulphate of silver is much more soluble than muriate; thus no visible turbidness arises unless the kanne of water contain ninety-eight grains of Glauber's salt, or twenty-five of vitriolic acid.

The presence of hepatic air renders the precipitate of silver more or less brown. Alkalis, lime, and magnesia, also precipitate nitrate of silver.

134. P. Nitrate of mercury is a prevaricating test, but very sensible to a variety of substances that may exist in mineral waters. As Bergman has not pointed out any particular application, in which this salt is essential, it will not be necesary to follow up his remarks on it, though in other respects important.

135. Q. Corrosive Sublimate;

136. R. Acetate of Lead;

137. S. Sulphate of iron; and

138. T. White arsenic; are next enumerated, but their utility is dubious, and the observations upon them of little value to the analyst.

139. U. Spirituous solution of soap is useful in giving general indications of the purity of water, which, if pure, scarcely renders it opalescent; but if abounding in foreign materials, or hard and unfit for washing, it produces more or less opacity or precipitation.

140. X. Liver of sulphur is affected by so many causes, that it may be dispensed with in the examination of waters.

141. Y. Alcohol throws down such salts as it cannot dissolve, especially the sulphates. It dissolves many muriates and nitrates.

142. At the end of this list, Mr. Brande states that he has thus enumerated the tests recommended by Bergman, and given an abridged account of his remarks upon them, for the purpose of showing the rapid stride which, under his assistance, was made in analytical chemistry; it is true that of many of these re-agents, and of their application, he was not the inventor, but he was the first who showed the real value and limits of the indications which they afford; an effort of no common sagacity, when we revert to the state of chemistry in his time.

143. The gaseous contents of mineral waters, are next adverted to by Bergman. These may be expelled by heating a given portion of the water in a retort, the beak of which is plunged into the mercurio-pneumatic apparatus, and the gas secured in the usual way. It generally consists of pure air, and aerial acid; the latter may be absolved by lime-water. The presence of hepatic air is easily recognised by its fœtor.

144. The remaining water is directed to be evaporated to dryness, and the residue weighed and digested in pure alcohol, shaken with eight parts of cold water; and finally the matters which resist the actions of alcohol and cold water, are to be boiled in four or five hundred parts of distilled water, and the solution filtered. The ultimate residuum generally contains iron and carbonate of lime, or perhaps of magnesia previously suspended by carbonic acid; it may be in a few instances argillaceous or silicious, and perhaps contain manganese, and directions are given at length for its separate analysis, as well as that of the aqueous and alcoholic solutions; it is here that Bergman displays an ingenuity and accuracy then new to chemical science, for in measuring his merits by a true estimate, we must go back to the state of chemistry at his time, and divest ourselves of its modern perfections and refinements; then the peculiar and genuine character of his researches will become prominent.

145. Bergman's merits as an assayist of metals in the humid way (a dissertation on which he published) are pointed out by Mr. Brande; after a luminous summary of the general phenomena of the solution of metals, he (Bergman) advances a series of facts relating to their precipitation; he shows that the caustic fixed alkalis occasion precipitates of the calces, but loaded with water by which their weight is much increased; that carbonated alkali precipitates carbonated oxides by double decomposition, that certain acids, which form insoluble compounds with metals, throw them down from their soluble compounds; that certain salts act in the same way by double elective attraction; and that in some cases triple combinations ensue, as when platina is precipitated by sal-ammoniac. He then adverts to the decomposition of one metallic salt by another, even where the acid is the same in both. Thus sulphate of iron, and muriate of tin, decompose muriate of gold. The metals also precipitate one another after a certain order, which is the same in all acid solvents, and effected by double elective attraction; 'for the metal to be precipitated exists in the solution in a calcined state, that being reduced by the phlogiston of the precipitant, falls to the bottom; while the precipitant being calcined becomes soluble. 'Although,' he says, 'many anomalous circumstances occur in this matter, the order is constant and never inverted.' The fifth section of this paper, explains the use of tests for discriminating the metals, pointing out the colors of metallic precipitates. 'Gold and Platinum are only in part separated from acids by the alkalis. Nitrate of silver affords a brown precipitate with caustic alkali, a white one with aerated soda and with muriatic acid.' Solution of muriate of mercury gives a red precipitate with carbonated, and a yellow or orange with caustic alkali. The latter is black if the solution be prepared without heat. Nitrate of lead is precipitated white by caustic alkali, an excess of which redissolves the precipitate. Nitrate of copper gives a bright green compound with aerated, and brown with phlogisticated alkali (ferro-prussiate of potassa). Iron is thrown down green by aerated alkali, and the precipitate, on exsiccation, becomes brownish yellow. Tin gives a white cloud with all the alkalis; bismuth white with water and alkalis; nickel greenish white with alkalis and ferro-prussiate of potassa; zinc and antimony white with all alkalis.

146. Bergman's essay on fixed air, or, as we have found he calls it, aerial acid, is the last of which Mr. Brande makes particular mention. The dissertation which Mr. B. quotes was read in 1774 before the Royal Society of Sciences at Upsal, and is printed in their Transactions for 1775. After describing the several methods of obtaining this air by the action of acids upon carbonates, by submitting them to a red heat and by fermentation, he proceeds to define the meaning of the term acid, in order to show that fixed air belongs to that class of bodies, that it is soluble in water, that it has a sour taste, reddens turnsole and unites to and forms crystallizable

Observations and Experiments on Air and Fire, is prefaced by an introduction from the pen of his patron Bergman, setting forth the advantages of experimental science, and the probable benefits that may result from the application of chemistry to the treatment and cure of diseases.

154. Finding air necessary for the production of fire, Scheele first turned his attention to its analysis; he found that solution of liver of sulphur, and certain other sulphureous compounds, occasioned a diminution in the bulk of air, to which they were exposed, equal to one part in about five, the flame of hydrogen and that of sulphur caused a similar decrease of bulk in air standing over water, and lime-water not being rendered in either case turbid by the residuums, no fixed air was formed. He then obtains empyreal air (oxygen) by the decomposition of nitric acid, and other processes; describes the method of transferring, collecting, and examining the gases, and endeavours to prove that heat is a compound of empyreal air and phlogiston; he also shows by direct experiments, that the absorption occasioned in atmospheric air by liver of sulphur, is referrible to the abstraction of its empyreal portion; that it totally absorbs empyreal air, and that, upon adding to the residuary portion of atmospheric air, a quantity of empyreal air, equal to that absorbed by the sulphureous liquor, an air is again compounded, similar in all respects to that of the atmosphere. The identity of these investigations, with those of Priestley, will not fail of being observed, but it must be recollected that they were entirely independent, and that, although Priestley was in the field a little before him, Scheele was unacquainted with his proceedings.

155. The details concerning the nature of air are followed by an enquiry into the properties of heat and light, which, though a little tainted by false theory, bears the stamp of an able and original mind. Adverting to the reflection of the rays from a common fire, by a concave metallic mirror, he remarks that they pass in straight lines, without suffering any derangement from currents or undulations in the atmosphere which they traverse; that glass intercepts the heat but not the light, that a mirror of glass reflects the light but absorbs the heat, whereas metal reflects both; the metal, therefore, if clean, does not become heated; but, if blackened over a burning candle, it then absorbs heat, and becomes very warm. He notices the distinction between heated air, and heat emanating in straight lines; 'represent to yourself a little hillock of burning coals; in this case the heat darting from this hillock all around, is that which may be reflected by a metallic polished plate; that, on the contrary, which rises upwards, and may be driven by winds to and fro, unites with the air. I call the first kind by way of distinction, radiant heat.' Discussing the phenomena of solar and terrestrial radiation, he considers their apparent differences to result, not from any absolute difference in the nature of the emanating principles, but in their quantity. 'There is no doubt,' he says, 'about the light of the sun and that of a burning candle being the same thing; for this affects the eye in the same manner as the sun, and represents the same colors through the prism, but being weaker it is no wonder that its beams, collected in a burning glass, will not burn; nor is there any doubt about light being a body in the same manner as heat, but I cannot persuade myself that light and heat are the same thing, since experiment proves the contrary.

156. Finding that light blackened nitrate of silver, though heat alone had no effect upon it, he considers light as containing an inflammable principle, and shows that luna cornea after long exposure to the sun's rays, is no longer perfectly soluble in ammonia, but leaves a portion of reduced silver; he also shows that when put into water, it forms muriatic acid in the light, but not in the dark; and that the violet rays produce these effects more rapidly and powerfully than the other colored rays, and even than white light.

157. Among Scheele's experiments on air and fire, some curious facts are detailed respecting the spontaneously inflammable compound discovered early in the last century by Homberg and called pyrophorus; it is shown that potass is necessary to its formation; and that alum crystallised by ammonia, is unfit for its production. The evolution of hydrogen during the action of iron upon sulphur, and of nitrogen in the detonation of fulminating gold, are also among the facts contained in this essay; as well as a variety of curious circumstances relating to the effect of vegetation and respiration upon air; and it closes with an account of the properties of sulphuretted hydrogen.

158. Scheele was more to be praised for a diligent observation and careful collection of facts, than for reasoning or theorising upon the facts detailed; but then, says Mr. Brande, he is so rich in facts, that we the more easily overlook theoretical failings. His Dissertation on Manganese for instance, with a description of the principal salts of that metal, contains the important discovery of dephlogisticated muriatic acid, or, as it is now termed, chlorine. In another place we shall have to show that the views of Scheele respecting the nature of this substance and the muriatic acid are correct; and that the term oxymuriatic acid, by which it was known in the French school, implies an erroneous notion of its constituent principles. To Sir H. Davy we are indebted for the revival and confirmation of Scheele's theory respecting the nature of chlorine; indeed the antioxygenous views of this last mentioned philosopher, if we may so express ourselves, have proved, in reference to the matter now adverted to, of much importance in their bearings upon the doctrines of chemistry generally.

159. In his essays on fluor spar and its acid, Scheele has committed several errors, amongst which, the most glaring is the conclusion which he draws respecting the formation of silicious earth. When powdered fluor spar is distilled with sulphuric acid in a glass retort, the silicious earth of the glass is dissolved by the acid of the fluor, carried over with it in the gaseous state, and in part deposited in the receiver containing water. Scheele inferred that silicious earth was here formed by the union of fluor, acid, and

ed, persisting in his error, he endeavours
that the same formation ensues in
vessels, and therefore independent of
he takes no due precautions against the
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uch to praise in the methods of analysis
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ody; it is a subject full of difficulties,
carcely be called complete even at the
y, though it has engaged the attention
acute analysts. The acids of arsenic
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1778 Scheele made known the pre-
the arsenite of copper, and recom-
as a useful and permanent color in
er painting; and in 1779 he took up
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1782, and is entitled, Experi-
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ar substance was accidentally
in the last century, by Dies-
ker at Berlin; the preparation
ept secret till published by
Woodward in 1724. In 1752 Macquer's dissertation upon it presented a connected view of its chemical history, which, however, was imperfect and unsatisfactory. Scheele directed his attention to the discovery of the principle upon which its color depended. He shows that the salt afforded by digesting Prussian blue in caustic pot ash, is a triple compound of the coloring principle, iron and pot ash; iron being the medium by which the coloring matter is attached to the alkali. This salt he decomposed by distilling its aqueous solution with a small quantity of concentrated vitriolic acid; and the liquor which passed into the receiver carried with it a great portion of the coloring principle, which has since been termed Prussic acid. Scheele then goes on to show that the action of this acid, in its pure state, upon metallic solutions, is very different from that which it exhibits when combined with alkalis. United with lime, he found that it afforded precipitates in the greater number of metallic solutions.

164. Lavoisier's celebrated reformation in chemical science and nomenclature, falls now to be noticed, which, although it came to affect the whole body of chemical doctrine and reasoning, consists of very little more than a generalisation; and, as we shall immediately see, in some cases, a false, or too hasty, generalisation of facts and circumstances which had been observed and detailed by others. It cannot, however, be denied, even by those who are least disposed to appreciate highly the claims of Lavoisier, that chemistry has become a more simple, a more interesting, and a more satisfactory pursuit, since the destruction of the phlogistic hypothesis, and the introduction in its stead of the oxygenous explanation of combustion. We have seen above that Rey, so far back as early in the seventeenth century, demonstrated that air causes that increase of weight which is effected in metals during calcination. Hooke too, in 1667, showed that part only of the atmosphere was concerned in the support of flame. Oxygen gas, or, as he termed it, dephlogisticated air, was discovered by Dr. Priestley. Cavendish proved the composition of water to be a compound of this air and hydrogen; but the reasonings and inferences of these philosophers were interfered with and injured by the hypothesis of phlogiston or the inflammable principle, and Lavoisier by discarding this imaginary or ideal something, and looking as it were only to what was sensible or tangible, embodied the suggestions of Rey and Hooke into one leading principle of pneumatic theory, and regarded the circumstances of calcination and combustion to be the combination of the ponderable part of the air employed in the process with the burnt or calcined body. He exposed fifty cubic inches of atmospheric air to heated mercury; by this exposure the air underwent a decrease equal to one-sixth of its original bulk, and became unfit for breathing, or for again acting in the phenomenon of combustion; at the same time the metal was converted partly into a reddish matter, forty-five grains of which, heated red hot, afforded 41·5 of running mercury, and seven or eight cubical inches of gas which proved to be the dephlogisticated air of

Dr. Priestley. He then recombined the forty-two cubical inches of the air that had been rendered unfit for combustion with the eight cubical inches of the dephlogisticated air separated from the mercury, and thus produced the original fifty cubical inches of common or atmospheric air.

165. The above experiment affords an instance not of combustion but of calcination, the difference of these two phenomena consisting principally in the slowness or rapidity with which the aerial union is accomplished. But how are the heat and light to be accounted for, which are sensibly evolved or made manifest when combustion is effected? One theorist considered all aeriform existence to be a compound of a ponderable base with heat (caloric) and light; now when this base is made to unite with a body during the process of combustion, the caloric and light are necessarily disengaged, and in this disengagement you have the sensible circumstances of the process. Instead, then, of explaining combustion or calcination by assuming the presence and operation of a principle which has not been demonstrated, and which, even in its supposition, is contradicted by the fact that the body operated on acquires rather than loses by becoming dephlogisticated, Lavoisier proposed that the denomination of the product should be as it were the statement of what had manifestly taken place in the process, and that the designation of the process itself should be founded on the same principles. Hence, upon this nomenclature being adopted, it became necessary to consider dephlogistication as oxygenation, and to study the chemists who had written at the time of phlogiston being in vogue, under the recollection of this change.

166. But why were bodies, thus having become united with a part of the air, named oxygenated? So early as the year 1667, Mayow, in his experimental investigations, found that the igneous part of the atmosphere, as he termed it, was concerned in the formation of some acid bodies; and, although this principle had been subsequently in a measure lost sight of, it was found to harmonise with succeeding discoveries, and more especially with the great discoveries of Priestley and Scheele respecting dephlogisticated or empyreal, or, as it is now termed, oxygenous air; and Lavoisier, seizing upon these facts and principles, extended, generalised, and applied, what had before been in some sort observed; and conceived that the vivifying, or empyreal, or pure, or dephlogisticated portion of the atmosphere, was the universal principle of acidification; on this account the name oxygen was applied to it: and, as we have before observed (see ACID), this enunciation of Lavoisier came to be generally received and accepted as the foundation of a new system of chemical doctrine, and both inflammability and acidity were thought to be fully explained by the oxygenous theory; the language in which chemical facts were announced, underwent this leading mutation, and it was expected that every new development of fact would harmonise with the new theory of causation.

167. Guyton Morveau, and Fourcroy, were the two principal associates of Lavoisier in methodising the new nomenclature; the first of these celebrated men was born at Dijon in 1737, and died 1815; the second (Fourcroy) was born at Paris in 1755, and died in 1809.

168. It shortly, however, was ascertained that Lavoisier and his associates had assumed too much for oxygenous agency, both in respect of acidification and combustion (see ACID and COMBUSTION); and the researches of Sir Humphry Davy in particular have demonstrated the errors of the French school in its ingenious attempt at grasping simplicity. To the article CHLORINE, and to the body of the present treatise, we must refer our readers for a full explanation of these discoveries and inferences; and shall bring the present essay to a close by remarking generally that the progress of chemistry has been very powerfully aided within the few preceding years by the important discovery of the metallic mode of exciting the electric power, and the relation of this power in its various modifications to chemical changes.

169. That the contact of different metals (we now again employ the words of Mr Brande), is frequently attended by their electrical excitation, seems first to have been observed by Mr Bennet in the year 1789; and the curious experiments of Galvani upon the convulsions excited in the limbs of animals, by the application of certain metals to their muscular and nervous fibres, led Volta to investigate the cause of such phenomena, and to attempt the accumulation of such electricity, which he attained by a succession of copper and zinc plates, with intervening pieces of moistened pasteboard; the zinc extremity of this pile was always in the positive, and the copper in the negative, electrical state; and the quantity and intensity of the electricity were found to augment with the number of alternations.

170. This instrument has been productive of two series of discoveries in chemistry, one of which has arisen out of its power in producing heat, and the other from its peculiar influence over the composition of bodies. The former has taught us the fusion and combustion of a number of substances; the latter has developed a new cause which influences chemical effects, depending upon the communication of attractive and repulsive energies to the elements of compound bodies.

171. Substances, held together by the strongest known affinities, suffer decomposition when submitted to the action of this all-powerful agent, one series or class of elements being always attracted by the one pole, and another by the opposite electrical surface; and it has been inferred from these facts that one power is productive o. electrical and of chemical changes, acting in the former instance upon masses of matter, in the latter upon its elementary particles.

We have thus brought to a conclusion the first, or introductory part, of our present treatise; it has already been intimated that the reader will find his account in going over the whele, although many portions of it, for fully understanding and appreciating them, will require some knowledge of the subject. We now proceed to the second division of the Essay, and treat of Chemical Properties and Principles generally.

PART II.

Of Chemical Laws, Properties, and Principles.

172. **Affinity.**—Under the word Attraction, in this work, the reader will find a distinction pointed out between the modifications of attractive power as exerted upon masses, or upon the particles or atoms of matter: and a further distinction, it will there be seen, obtains between cohesive attraction and the attraction of affinity; the first term denoting the power which is exercised upon particles of a similar nature, while affinity applies to the tendency of union between particles of a dissimilar kind; a distinction which is illustrated in the following manner:—A lump of copper may be considered as composed of an infinite number of minute particles, or integrant parts, each of which has precisely the same properties as those that belong to the whole mass. These are united by the force of cohesion. But if the copper be combined with another metal (such as zinc), we obtain a compound (brass), the constituent parts of which, copper and zinc, are combined by the power of chemical affinity.

173. But in chemical treatises it is necessary to take cognizance of cohesive attraction, which indeed, in one sense, may be considered as a chemical power, since, as we have seen, its influence is exerted among the minute particles of which a simple mass is formed; or it is rather, we should say, the business of chemistry to investigate the nature, and trace the operation of those powers and principles by which cohesive attraction is interfered with and modified.

174. Cohesion, as implied by the term, is most strongly exerted in solids, and according to the degree of solidity in a body, is the exertion of the power; in liquids it acts with considerably less energy, and in the gaseous or aëriform modification of matter its power seems to be lost. Water, when existing in the condition of ice, has, of course, considerable cohesion: when it reassumes the state of water the cohesion is diminished, and by the time that it is completely converted into vapor, the power is gone.

175. Mechanical force, solution, and heat, are the three main powers by which this cohesive property of bodies is broken in upon, lessened, and destroyed. As an example of the first we may adduce the common process of pounding a mass in a mortar, which is in fact a mechanical and forcible separation of particles: solution effects the division in a different manner, and to a greater extent; while heat for the most part operates with still greater energy, but is much varied in its influence according to the nature and circumstances of the body upon which its agency is exerted.

176. The two last powers, solution and heat, are strictly chemical in their operations, and, of course, fall to be considered in the present treatise. Of heat, however, we shall defer the investigation till we shall have considered the subject of affinity. We are now then to treat of

177. **Solution and Crystallization.**—When a solid disappears in a liquid, if the compound exhibit perfect transparency, an example of solution is presented; for the expression is applied both to the act and the result. Thus solution takes place when you throw a small quantity of common salt into a sufficient quantity of water; the salt disappears, or, in other words, is dissolved. Now this is a case of chemical attraction overcoming the cohesive power; but it acts within certain limits, for a given quantity of water has only the power of dissolving a certain portion of salt; and when this is effected, the point of saturation is said to be arrived at, and the compound of the salt and water is named a saturated solution; after this, the balance may be said to turn on the side of cohesion, the chemical affinity between the solid and fluid being able to manifest itself no further.

178. In this illustration we have supposed the water to be at its ordinary temperature; but if you heat the fluid, in some cases, you will thereby give greater scope to solution, or enable some salts to unite in a greater quantity with the water; but when the solution thus charged with a superabundance of salt is suffered to cool down to its ordinary standard, that portion of the salt which had united with the water in consequence of the fluid's increased heat will be deposited; and in this reproduction of solids, a most interesting series of phenomena often develope themselves.

179. By the process of cooling, a supersaturated solution is thus made to deposit solid matter; but the application of heat will, under some circumstances, effect the same thing; the heat expelling a portion of the fluid, or, as it is termed, evaporating it, and thus giving room for the cohesive attraction again to exert itself. If this process of evaporation be conducted slowly and carefully, the saline particles will gradually approach each other, and the cohesion or aggregation will be effected according to certain laws, and regularly shaped masses called crystals will be formed.

180. In this act of separation, however, the crystals of almost all salts take with them a quantity of water which is necessary to their existence, and which is called their water of crystallisation; this is present in some crystals in a much larger proportion than in others; thus the salt called sulphate of soda contains in its crystallized form more than half its weight of water, while in the crystals of some other salts a very small portion of fluid is present; but it is important to observe that in every salt it exists, not in uncertain and indefinite, but in definite proportions; that is, that the same kind of salt always requires for its crystallisation the same quantity of water.

181. There is another law also in reference to the water of crystallization that is necessary to recognise, viz. that it is retained in different salts with very different degrees of force. Mere exposure to the atmosphere is sufficient to dissipate the water of crystallization from some kinds of salts; while others, on the contrary, instead of imparting water to the air, take water from it. The first species are called efflorescent, because they become dry and flowery when exposed to the air; the second are termed deliquescent salts, from their readily liquifying.

182. When two salts are contained in the same solution, varying in their degree of solubi-

lity, and having no strong attraction for each other they may be obtained separately; for, by a careful evaporation of part of the solvent, that salt, the particles of which have the greatest cohesive tendency, will crystallise first. If both salts are more soluble in heated than in common water, and the temperature of the solvent has been increased, the crystals will not appear till the water cools. But if one of them, like common salt, is equally soluble in hot and in cold water, crystals will make their appearance even during the act of evaporation. In this way nitre may be separated from common salt; nitre being more soluble in hot than in cold water, its crystals will not appear till after the solvent has been cooled, while the crystals of the common salt will form during the evaporation of the water; that is, under the continued application of heat.

183. Crystallisation is induced or accelerated by introducing into the solution a solid substance as a nucleus, such as a piece of thread or wood; but it is still more so by immersing in the solution an already formed crystal of the same kind with that we expect to be formed; and in some instances if there be more than one kind of salt in solution that will most readily separate, ceteris paribus, of which the crystal or crystals have been introduced.

184. A strong solution of salt will sometimes refuse to crystallise, if kept excluded from air, but crystals will instantaneously form, upon admission of air. Agitation too, will often occasion the immediate and copious production of crystals in a solution which will not crystallise till thus treated. The admission of light also, and the agency of the electric power, will in some cases rapidly excite crystallisation.

185. The nature of the solvent has an influence over crystallisation. Alcohol and water will both dissolve some salts, but the affinity of the former for them shall be so weak that crystals are much more readily thrown down from alcoholic, than from aqueous solutions.

186. But the great and fundamental law of crystallisation is that which has been alluded to in par. 179, viz. that every solid has a tendency to assume a peculiar shape. Thus common salt, when most perfectly crystallised, forms regular cubes; nitre assumes the shape of a six-sided prism, and alum that of an octahedron; so truly is this the case, that we are often able to determine the composition of a substance by observing its external characters; but not so invariably, for there are certain exceptions, at least seeming exceptions to the principle, that identity of crystalline form is necessarily connected with identity of chemical composition; and it has been known that the same solid admits of great variety of crystalline figure, without any variation of its chemical composition. But still the tendency as it is expressed above, of every solid to assume a peculiar shape, must be received as a fundamental law in crystallisation; the varieties being occasioned by accidental circumstances which interfere with cohesive tendency, and the diversities themselves being found reducible to a small number of simple figures, which for each individual species is always the same.

THEORY OF CRYSTALLISATION.

187. Bergman first suggested that all crystallised forms had one primitive nucleus, a suggestion he was induced to make in consequence of its having been observed, that when a piece of calcareous spar was broken with care, its particles assumed a rhomboidal figure. This suggestion, and the consequent investigation to which it led, was still further pursued by Romé de Lisle, who referred all the variations of form in different crystallised substances to certain truncations of an invariable primitive nucleus. But his method of proceeding was hypothetical, inasmuch as he supposed a given primitive form to be truncated in different manners, and thus established a gradation from simple, and primitive to complicated figures.

188. The Abbé Haüy was the first to unfold in an experimental and mathematical manner the true theory of crystalline formation. It is known to those who are in the practice of polishing gems, that crystals only present plane and smooth surfaces when cut or broken in certain directions; when the split by the instrument is effected in other directions, an uneven and irregular surface is exposed. Now the Abbé pursuing this sort of natural division in crystallised bodies, found that the last product of the artificial division of a six-sided crystal of calcareous spar, was an obtuse rhomboid, and likewise, that other forms of calcareous spar, however different at first, were reducible at last to the rhomboidal solid, by the same mode of treatment; whereas a crystal of another kind, a cube for instance, of fluor spar, presented in its ultimate division the octahedron form.

189. Pursuing still further this method of division, Haüy obtained six primitive forms, viz. 1. The Parallelopipedon, which includes all the six-sided solids, parallel two and two. 2. The tetrahedron. 3. The octahedron. 4. The hexangular prism. 5. The rhombic dodecahedron with equal rhomboidal planes. 6. The triangular dodecahedron with triangular planes.

190. By further mechanical divisions, these primitive forms were found resolvable into integral elements or moleculæ, as Haüy termed them, which are three in number, viz. 1. The parallelopipedon or simplest solid, with six faces parallel two and two. 2. The triangular or simplest prism, with five surfaces. 3. The tetrahedron or simplest pyramid, with four surfaces; the secondary forms being supposed dependent upon decrements of particles, taking place on different edges and angles of the primitive ones.

191. But in this theory of crystallisation, the following question suggests itself, viz. as a whole mass of fluor spar is divisible into the tetrahedron and octahedron forms, which of these forms is to be regarded as primitive? and further, as neither of these can fill space without leaving vacuities, how is it possible to suppose any arrangement by which the particles will remain at rest, so as to form the base of a permanent crystal?

192. This difficulty Dr. Wollaston has most ingeniously obviated by considering the elementary particles as spheres; and Mr. Daniell has

lately described a new process of developing the structure of crystals which while it is superior to that of mechanical division has served to produce some remarkable confirmations of Dr. Wollaston's hypothesis.

193. If a shapeless mass of alum be immersed in water and left leisurely to dissolve, it will be found at the end of three weeks to have been more acted upon by the solvent, at the upper than at the lower part; and the mass will have assumed a pyramidal shape. At the lower end of the mass octahedrons and sections of the same figure will appear in abundance and as if carved upon its surface. Other salts yield other figures, the figures varying with the different faces of the original mass. 'In this way alum alone furnishes octahedrons, tetrahedrons, cubes four and eight-sided prisms either with plain or pyramidal terminations, and rhombic parallelopipedons. It is evident, then, that no theory of crystallisation can be admitted which is not founded upon such a disposition of constituent particles as may furnish all these modifications by mere abstraction of certain individuals from the congeries, without altering the original relative position of those which remain; and these conditions may be fulfilled by such an arrangement of spherical particles, as would arise from the combination of an indefinite number of balls endued with mutual attraction, and no other geometrical solid is adequate to the purpose; and where bodies afford crystals differing from the octahedral series, an analogous explanation is furnished by supposing their constituent particles to consist of oblate spheroids, whose axes bear different proportions to each other in different substances. Hence we may also conclude that the internal structure of all crystals of the same body is alike, however the external shapes differ. In corroboration of the above hypothesis we may remark that the hexaedron is, of all geometrical figures, that which includes the greatest capacity under the least surface. If, therefore, the ultimate particles of crystalline bodies be spheres or spheroids, the greatest possible number in the least space will be included in this form. It is probable that the exterior shape of every crystal is determined by the nucleus first formed by a certain definite number of particles, which by the power of mutual attraction overcome the resistance of the medium in which they were suspended, or from which they were separated. This number may vary with the solvent or other contingent circumstances. Four spherical particles thus united, would balance each other in a tetrahedral group six in a octahedral group, and each would present particular points of attraction, to which all subsequent deposits would be directed. Now, let us imagine two nuclei formed in the same solution, whose axes run in contrary directions; their increase will consequently be in contrary directions, and each will attract a particular system of particles from the surrounding medium. If these two systems should cross each other in their course, a greater number will be brought within the sphere of mutual re-action at the point of junction, and they ought to arrange themselves in the least possible compass. The facts here answer to the theory. If we select any crystals having others crossing them nearly at right angles, and separate them, the points of junction invariably present an hexaedral arrangement.'—*Brande*.

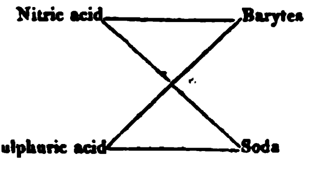
For further information on the interesting subject of crystallisation, and for engraved figures illustrative of the facts and the theory the reader is referred to the article CRYSTALOGRAPHY. in the body of the work.

Elective Affinity.

194. Bodies attract each other unequally, and if several be brought together those first enter into combination which have the strongest mutual affinity—hence the propriety and the application of the term elective as applied to chemical attraction. Let A represent nitric acid and B C a composition of lime and magnesia, B being the symbol of the former, and C of the latter; then we should say say that A will unite to B in preference to C, and consequently if we add an aqueous solution of B to a solution of C in A, C is thrown down to the bottom of the vessel, and A and C become united; in other words the lime occupies the place which the magnesia had first occupied and the magnesia is precipitated.

195. The above is a case of what is termed by the chemists single elective affinity, and tables of attraction have been formed from actual observation of the respective tendencies in bodies thus to unite and reject. One acid for instance is taken and placed at the head of a column, and the substances with which it manifests a tendency to combine, are arranged according to the degree in which this tendency is manifested, the substance which the acid attracts most powerfully being placed nearest to it, and that for which it shews the least attraction being inserted at the bottom of the list.

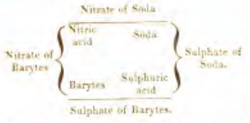
196. But it is necessary to observe that displacement of bodies, in consequence of affinities being brought into play is often double and complicated, new compounds being produced instead of simple and single precipitates; it frequently happens for example that the compound of two principles refuses to be separated by the addition of a third or a fourth separately, but if this third and fourth be united and made to come into contact with the first compound, then a separation or a decomposition will be the result. Illustrations of this fact and principle are made by the following diagrams:



Nitrate of barytes, or a composition of nitric acid with barytes in solution, is supposed to be mixed with sulphate of soda or a combination of sulphuric acid and soda, the results are sulphate of barytes and nitrate of soda as indicated by the diagonal lines.

197. A still more complete view of the resulting changes is presented by the following

diagram; the original compounds being placed on the outside of the vertical brackets, and the new compounds above and below the outsides of the horizontal lines of the diagram, and the component parts being inserted within the diagram.



198. In the instance of double decomposition it has been supposed that two series of affinities may be traced, and Mr. Kirwan proposed the term quiescent to express the one and divellent to characterise the other, the former tending to preserve the original compound, or resisting efforts to change it, the latter tending to disunite it, and effect new combinations.

199. The above example is one in which the quiescent affinities are between the nitric acid, and the barytes, and the divellent between the sulphuric acid and barytes, and of course, the divellent must be more forcible than the quiescent affinities in order to effect the decomposition.

200. But this hypothesis of quiescent and divellent affinities, or rather this mode of explaining the phenomena that occur in consequence of different affinities of a complex kind, will be found illegitimate in several instances; the forces of attraction being very materially interfered with by several extraneous forces, and circumstances, which now demand notice.

201. i. Quantity has a very powerful influence upon affinity, thus if two salts be mixed together in certain proportions decomposition will ensue; but the same effect will not be produced in some other proportions. Hence a larger quantity may make up for a weaker affinity, and vice versa.

202. ii. Cohesion greatly influences the tendency which bodies may otherwise possess of union and separation. Place in sulphuric acid a quantity of solid fluate of lime, and you will find but little action take place between the two materials; but rub the stone into powder before you immerse it in the acid, and a violent action is the immediate result.

203. iii. Insolubility interferes with the chemical influence of affinity; this indeed may be considered as having been partly stated under the head of cohesion; but cohesion and solubility are not in all senses identical forces. It is to be remarked, moreover, that both insolubility and cohesion, under some circumstances, favor affinity. When, for example, to the compound of sulphuric acid with barytes (sulphate of baryta), soda is added; decomposition would be immediately effected were it not prevented by the insolubility and cohesion of the compound.

204. iv. Specific gravity must necessarily act in aid of insolubility in interfering with chemical affinity; and so must

205. v. Elasticity. Elastic fluids, indeed, it has already been remarked, have their particles separated so widely, that although the bases of them may possess very powerful attractions for the bases of others, the mechanical condition in which the material exists by preventing approximation prevents union; and combination can often only then be procured where a strong mechanical pressure is made to oppose this tendency to separate.

206. vi. Temperature, as will shortly be stated more at large, has a most formidable influence upon the circumstances of affinity; an increase of temperature at one time assisting, at another impeding chemical combinations.

207. vii. Chemical union is influenced in a most marked and important manner by the different modifications of electricity. We have already indeed said enough to prove how very effective this agency proves in operating chemical change, and shall have occasion hereafter to revert to the subject.

208. To mechanical pressure, as influencing combination, we have just alluded under the fifth head; and enough has now been advanced to prove that statements of laws and principles, which go upon the supposition of affinity, as an abstract power, must necessarily be erroneous, since so many circumstances, connected with the being of material substance, interfere with the regularity of its operation.

209. While investigating the laws of chemical affinity, Berthollet thought that he had discovered ground to infer that bodies whose affinities are thus interfered with by extraneous forces, might otherwise be united in every proportion. He conceived also that 'the affinities of a compound are not newly acquired; but are merely the modified affinity of its constituents, the action of which, in their separate state, is counteracted by the prevalence of opposing forces. By combination these forces are so far overcome, that the affinities of the constituent are enabled to exert themselves.' See 96, et seq.

210. Elementary affinities is a term applied by Berthollet to the individual affinities of constituents; while he calls the action of different affinities present in one compound, resulting affinities. The term resulting affinity is used also to express the force with which a simple body acts on a compound. 'A simple body indeed may exert towards a compound both an elementary and a resulting affinity. If the elementary affinity prevails, it will unite only with one of the principles of the compound, as when a simple body, by its affinity for oxygen, decomposes nitric acid, and liberates its nitrogen in a separate form. If the resulting affinity be predominant, the simple body will unite with the whole compound, without effecting any disunion of its elements. From these views it may be inferred that we are not in any case to deny the existence of an affinity between two bodies, merely because they do not combine when presented to each other; for an affinity may be suppressed by the prevalence of opposing forces.'

211. The theory of Berthollet (says Dr. Henry) which promised, on its first developement, to throw new light on many subjects of chemical

philosophy, has lost much of its probability by the subsequent progress of the science. It is directly indeed at variance with the doctrine of definite proportions, which may now be considered as firmly established. It is liable moreover, to the following objections.

212. i. It has been shown by professor Pfaff of Keil, that in various cases where two acids are brought into contact with one base, the base unites with one acid to the entire exclusion of the other. When, for example to a given weight of lime, quantities of sulphuric and tartaric acids are put, either of which would exactly neutralise the lime, the sulphuric acid unites with the lime to the entire exclusion of the tartaric. The same evidence of a superior affinity of the sulphuric acid over that of the oxalic, is obtained by placing those acids in contact with as much oxide of lead as would exactly saturate either of them. Again, comparing the action of two bases on one acid, the same law is found to hold good, for when potassa and magnesia are mixed with just as much sulphuric acid as is required to neutralise either of them, the potassa seizes the whole of the acid, and no part of it unites with the magnesia. Nor can these effects be explained by any of those extraneous forces which Berthollet supposes, in all cases, to regulate chemical action, or by any principle but a stronger affinity of sulphuric acid, than of tartaric or oxalic acid for the different bases, and of potassa than magnesia for the same acid. See 97.

213. ii. Some of the cases which Berthollet adduces to shew the reciprocal displacement of two bodies by each other from a third, are examples, not of single elective affinity, in which three bodies only are concerned, but of complex affinity in which the attractions of four bodies are brought into action.

214. iii. In other cases, the consideration of the affinities of two A and B for a third C is complicated with this circumstance, that the neutral compound of A and B has an affinity for a further portion of one of the ingredients. If then C be brought into contact with the compound A B, we may have acting at the same moment the affinity of C for A, which partly decomposes the compound A B; and the affinity of the undecomposed part of A B for that portion of B which is set at liberty. For instance, when nitric acid acts on sulphate of potassa, some nitrate of potassa is formed; and the sulphuric acid which is set at liberty, uniting with the undecomposed sulphate of potassa, composes a new salt, consisting of sulphate of potassa with an excess of sulphuric acid.

215. iv. It is a strong objection to the theory of Berthollet, that in some cases decomposition happens, which, according to his views, ought not to take place; that in others decomposition does not ensue, which the theory would have led us to anticipate.

216. v. The theory is objectionable, inasmuch as in several instances properties are supposed to operate before the bodies exist, to which those properties are attributed. It is inconceivable, for instance, that the cohesion or insolubility of sulphate of baryta can have any share in producing the decomposition of sulphate of potassa by that earth, for the insolubility of sulphate of baryta can have no agency till that compound is formed, which is the very effect to be explained.

217. We have thus preferred making use of Dr. Henry's language in objecting to some of the doctrines of Berthollet, because the objections are stated in a perspicuous and concise manner. It must be understood, as indeed Dr. Henry himself admits, that the extraneous forces above adverted to, do in reality much modify attractive influences; but 'they are entitled only to be considered as secondary causes, and not as determining combinations or decompositions, nor as regulating the proportions in which bodies unite; independently of the superior force of chemical affinity.'

218. It has been above intimated, that the theory of definite proportions, which in itself, unincumbered by some of the explanations or elucidations of it, is now generally admitted as a system of facts, goes counter to the views which Berthollet took of chemical affinity. Under the word ATTRACTION the reader will find an account of this theory, we may here take occasion to repeat its main and leading principle to be, that when bodies unite, so as to form one compound only, that compound always contains the same relative proportions of its components; and, when two bodies unite in more than one proportion, the second, third, &c., proportions are multiples or divisors of the first, a principle the development and substantiation of which have served to give a new complexion to the whole body of chemical science. See ATTRACTION, and sec. 27 et seq. of the present essay. The doctrine of Chemical Equivalents also explains these phenomena.

Heat, Caloric.

219. Philosophers have frequently to deplore, both the natural poverty and artificial laxity of language; the terminology of causation is often applied to the mere expression of effect, the idea of process is blinded with product, and common perception is taken as an estimate of powers whose real value and extent can only be appreciated by other tests than those of fallacious feeling.

220. That the sensation of heat which a body imparts, to a person feeling it, is not the true measure of the quantity of power producing this sensation, is exceedingly obvious to modern science, and, moreover, as it seemed inconsistent with that precision of language which philosophy seeks after, to confound the cause of the sensation with the sensation itself, the word caloric was substituted for heat, when the power fell to be considered by the chemist; an objection, however, may be fairly taken, even to this term, partly on the principle that makes the use of the word heat itself objectionable, and partly inasmuch as a substantive notion is conveyed by its employment, when, in point of fact, the materiality of the power has not hitherto been demonstrated.

221. Heat, or Caloric, so far as its chemical agencies are in question, may be considered as a principle and power opposed to cohesive attraction, for its tendency is to separate the particles of bodies, to a greater than their natural distance and the varied susceptibility of bodies, thus to

be acted on by heat, determines, in the general way, the varied form in which they exist as more or less solid, or fluid, or aëriform. (See 240.)

222. But heat and temperature, as we have just intimated, are not to be confounded. By the latter term we are to understand the condition of a body, relatively to its power of producing the sensation of heat, and generally of occasioning expansion; by the former, the chemist expresses the absolute quantity of the power present in the body, whether it be imparted to the sensations or not. The caloric of temperature or expansion is usually named free or uncombined caloric, the heat of bodies not thus demonstrated was formerly termed latent, and now, usually, combined heat.

223. The relative quantities of heat which different masses of matter in the sama condition demand, to raise them to the same temperature, is named their specific heat; and those bodies which require most heat for such elevation are said to have the greatest capacity for heat.

224. Now the capacities of bodies for heat considerably influence, of course, the rate at which they are heated and cooled; those bodies having the greatest capacity which are the most slowly heated and cooled.

225. From this law it follows that when different masses of matter are exposed to the same source of heat, they permit it to pass through them, or into and out of them, with very different degrees of rapidity; or in other words, they have various conducting powers. Among solid bodies metals are the best conductors; silver, and gold, and copper, being better conductors than platinum, iron, and lead. Next to the metals the diamond and topaz may probably be placed; then glass; then flinty and hard stony bodies in general; then soft and earthy bodies of a porous constitution; then wood, and, lastly, down, feathers, wool, and other porous articles of clothing.

226. 'The different conducting powers of bodies, in respect to heat, are shown in the application of wooden handles to metallic vessels; or a stratum of ivory or wood is interposed between the hot vessel and the metal handle. The transfer of heat is thus prevented. Heat is confined by bad conductors; hence clothing for cold climates consists of woollen materials; hence, too, the walls of furnaces are composed of clay and sand. Confined air is a very bad conductor of heat; hence the advantage of double doors to furnaces, to prevent the escape of heat; and a double wall, with an interposed stratum of air to an icehouse, which prevents the influx of heat from without.

227. 'From the different conducting powers of bodies, in respect to heat, arise the sensations of heat and cold, experienced upon their application to our organs, though their thermometric temperature is similar. Good conductors occasion, when touched, a greater sensation of heat and cold than bad ones. Metal feels cold, because it readily carries off the heat of the body; and we cannot touch a piece of metal immersed in air of a temperature moderate to our sense.' *Brande.*

228. But heat is not only different in the quantity and readiness with which it is given off from bodies, but also in respect to its mode of impartation to surrounding media; it is not only sent out from bodies, and diffused over matter by general communication, but it is likewise projected in right lines with great velocity, and in the same manner, so far as motion is concerned, as is light. So great, indeed, is the velocity with which calorific rays are transmitted, that Pictet found no perceptible interval between the time at which caloric quitted a heated body, and impinged upon a thermometer at the distance of sixty-nine feet.

229. The first is called the heat of communication, by which a tendency to equilibrium, and equality of temperature is brought into act; the second is named distinctly, heat of radiation.

230. The heat of communication, then, as we have just intimated, and as its appellative, indeed, implies, diffuses itself freely through all matter, and mingles with the air through which it is conveyed, while the heat of radiation, or radiant, or radiating heat, moves through air without appearing to communicate to the medium any increase of temperature, and without being dependent on any agency of the medium through which it passes: it even traverses a vacuum; and, on the other hand, it will pass through dense and opaque bodies, though by the intervention of these bodies its velocity is very greatly impaired.

231. The heat we feel in approaching a fire is chiefly occasioned by radiation, while the general heat of the room is the heat of communication. It must, however, be noticed, that radiation does not depend upon the medium through which it passes, or rather upon any agency of that medium, but appears to be the same through all the different varieties of aëriform bodies, yet that the gases differ materially from each other in their conducting power. 'Caloric, also, radiates from bodies at all temperatures, but the quantity radiated bears some proportion to the excess of the temperature of the hot body above that of the surrounding medium.' Hence, if we have any number of bodies at different temperatures, in the vicinity of each other, they may all, agreeably to the ingenious theory of M. Prevost, be considered both as radiating and receiving caloric; but the hot ones will radiate more than they receive, while the cold ones will receive more than they radiate.

232. The process of radiation appears to be constantly going on from the surface of the earth, and it is partly on this principle that we are to explain why the heat which our planet is incessantly receiving from the sun does not accumulate to such a degree as to render it a less fit habitation for man. The period when radiation from the surface of the globe is most discoverable by its effects, seems to be during the night, especially when the sky is perfectly unclouded; for a covering of clouds serves as a mantle to the earth, and prevents the free escape of radiant heat. Under favorable circumstances, it has been shown by Dr. Wells, that the temperature of the ground, especially when its covering is

formed of some substance that radiates freely, is several degrees below that of the atmospheric stratum a few feet above it. It is this diminished temperature of the earth's surface that occasions the deposition of dew and hoar frost, which are always observed to be most abundantly formed, under a clear unclouded sky.' *Henry.* See METEOROLOGY.

233. The cause of radiation, or rather the principle upon which it is effected, has been the subject of investigation and controversy. Some have accounted for it upon the assumption of heated bodies occasioning undulations in the air, something in the same manner as the waving excited by bodies when they emit sound; but it is said that the different phenomena of prismatic refraction, and of solar and terrestrial radiation, are not satisfactorily explained by such an hypothesis.

234. It has been suggested further, that if we consider sensible heat in bodies to depend upon vibrations of their particles, a certain intensity of vibrations may send off particles into free space, and particles moving rapidly in right lines may, in losing their own motions, communicate a vibratory motion to the particles of terrestrial bodies. (Davy's Elements, quoted by Brande.) We must, however, know more than we at present do, of the absolute essence of heat, or whether it is matter or mere power before speculations on its modus operandi can be received as entitled to the character of legitimacy.

235. The heating effect of solar rays, it has long been known, depend much upon the color of the surfaces upon which they infringe, and black and dark bodies are more heated than those which are white or of light tints, circumstances dependent upon absorption and reflection. Hence the superiority of dark colored dresses in the winter season, and the preference properly given to light colored clothes during the heats of summer.

236. Professor Leslie has shewn that the phenomena of terrestrial radiation are connected with the nature of the radiating surface, and that those surfaces which are the best radiators of this heat are also gifted with the greatest absorbing power. *Leslie on Heat.*

237. Unmetallic and unpolished surfaces are the best radiators and also the best receivers of radiant heat; while polished metallic substances are the worst radiators, and have the least absorbing powers. In experiments with metallic mirrors, the whole nearly of the heat is reflected, and the mirror itself does not become warm; but if it be coated with any unpolished, and especially unmetallic coating, as with paper, or paint, the reflection is then scarcely perceptible, and the mirror becomes hot from the absorption of the radiant matter. *Brande.*

238. The laws of radiant heat and of light are in some sort so similar that it has been imagined they both depend upon slight modifications of the same substance or power; on this head we cannot do better than extract the following sentences from an author whose reasonings are generally acute, and whose language is always perspicuous,--Dr. Murray.

239. The calorific rays (says this author) which exist in the solar beams though incapable of producing illumination have all the physical properties of the rays of light, observe the same laws of reflection and refraction, and are only inferior to a certain extent in their power of penetrating transparent bodies; hence the opinion may be advanced as not improbable, that they are of the same nature as light, only with less projectile force, or existing under some modification which renders them incapable of affecting the organ of vision. From these solar calorific rays, there is a kind of transition to the rays projected from heated bodies, displayed in the fact that the latter differ in their projectile power according to the temperature at which they are thrown off, those discharged at a high heat penetrating transparent media with more facility than those which emanate at a lower temperature. We thus in some measure trace the gradation into quiescent caloric; while the facts, on the one hand, that the discharge by radiation from bodies reduces their temperature; and on the other, that the whole excess of heat in a body may be extracted from it without any radiation, by direct communication to another; equally prove, that the principle discharged by radiation and by slow communication is precisely the same: yet caloric in the state in which it remains in bodies producing temperature, and its effects, expansion, fluidity, &c. is so different in all its laws from light, and there is so much obscurity with regard to any conceivable operation by which it should assume these different modifications, that the whole subject must be regarded as very imperfectly understood. Dr. Hutton advanced an hypothesis, that radiant heat is light in a state incapable of exciting illumination, founded on the inference that as the heating power of the different species of visible light is not proportional to their power of exciting vision, there may be a species of light capable of exciting temperature without being luminous; see LIGHT. This, however, is vague; it does not account for the relation of radiant caloric to quiescent caloric; nor for the fact that radiant caloric has none of the chemical properties of light, and it is even doubtful if light apart from caloric has any heating power. Were the materiality of caloric established, the hypothesis might not be an improbable one, that the calorific rays are composed of light and caloric; that this combination may take place in different proportions, so as to give rise to different degrees of energy predominant in the one or the other, and may extend even to the different rays of visible light, which differ in the degree in which they excite heat. But all such speculations it must, be acknowledged, are deficient in precision and rest on no satisfactory evidence.

240. We are now to return to the consideration of caloric as a communicating and diffusive power. All bodies in nature are regarded as subject to two opposing forces, viz. the attraction of their own particles, and the repulsive influence of heat (see 221), and the degree of expansion in bodies, in the general way, bears a proportion to their temperature. It is upon this principle of the expansibility of matter by heat, that the thermometer has been constructed—an instru-

ment of large utility both to enable us to acquire and to state the laws and properties of heat From what has been observed however (220) it will follow that it is not the absolute quantity of heat that the thermometer indicates, but that it merely ascertains the quantum of one of the principal effects of heat. Some one body is taken and the degree of expansion produced by heat in that body observed, and it is then made the standard measure to which everything is referred. The standard, as is generally known, is most commonly quicksilver, a quantity of which is contained in a small globe of glass, from which descends a long narrow tube (see THERMOMETER), and the quicksilver rises or falls according to the increment of temperature.

241. Expansion then or the dilatation of bodies may be considered as an almost universal consequence of an increase of temperature. But expansion and temperature are not in all bodies proportionate. Liquids expand more than solids, aëriform bodies more than liquids.

242. Nor is the same degree of expansion produced even in the same solid or fluid body, at all temperatures, by the same increment of heat, in the general way the expansion is greater when the temperature is high than when it is low. The explanation of this fact is that the force opposing expansion, viz. cohesion, is diminished by the interposition of caloric between the particles of bodies, and therefore, when equal quantities of caloric are added in succession, the last portions meet with less resistance to their expansive force than the first. In gases which are destitute of cohesion, equal increments of heat appear on the contrary to be attended with precisely equal augmentations of bulk.

243. The tendency of heat to produce an equilibrium has already been intimated. All bodies in a given space soon arrive at an equality of temperature. This is effected through the medium of the air. 'When a heated ball or iron is exposed to the open air, the caloric which is accumulated in it flows out, and its temperature is gradually reduced to that of the surrounding medium. This is owing to two distinct causes; the air, immediately surrounding the ball, acquires part of the caloric which escapes, and having its bulk increased, is rendered specifically lighter and ascends. This is succeeded by a cooler and heavier portion of air from above, which in its turn is expanded and carries off a second quantity of caloric. Hence a considerable part of the caloric which is lost by a heated body is conveyed away by the ambient air; a property of which advantage is taken in the warming and ventilating of apartments. But the refrigeration cannot be wholly explained on this principle; for it has long been known that heated bodies cool, though with less celerity, under the exhausted receiver of an air pump, and even in a Torricellian vacuum.'

244. We have hitherto considered the properties of caloric as the power itself is free or not permanently combined; it will be recollected however that we intimated its susceptibility of combination with other bodies, in such sort as to lose its general characteristics of a free power (see 222), and we now have to notice the very important doctrine of latent, or combined, or specific heat to which the reader will find special reference made in the article AIR.

245. Bodies in passing to a rarer from a denser state, not only receive large increments of caloric, but they generally absorb heat; that is they are made to receive and contain more heat, than is evident to the senses, or even to the thermometer. And on the other hand an increase in the density of a body, is for the most part attended by the circumstance of setting free a part of the caloric of such body, which was before in a manner locked up in it, or not being evidenced by temperature, is called latent heat. If you hammer a piece of metal, you make it hotter, that is, you increase its density and by so doing, let out some of its latent heat. In the same manner, you let out heat from a liquid by converting it into a solid, and from a gas by bringing it down into the liquid form. Steam and boiling water, may be at precisely the same temperature, though in a pound of the latter, a much smaller quantity of caloric is contained, than in a pound of the former; therefore in reducing steam to the state of water, at a given temperature, you of course set free a much greater quantity of caloric, than by cooling down the same weight of water to the same measure of temperature.

246. Does this latent heat of bodies, or that part of their caloric, that is not evidenced by temperature, combine chemically with the mass? 'Does ice, for example, when changed into water, form a chemical union with caloric, similar to that which exists between potassa and sulphuric acid?' Modern chemistry inclines to the negative of this view, since it is not necessary for the extrication of caloric from a body, that more energetic affinities be brought into play, as in the case of dislodgment of substances, or principles from compounds; it may be urged moreover, that it is not very easy to conceive that sort of union, which implies tangible and demonstrable matter, in a principle the materiality of which, as before stated, has not yet been brought to absolute proof.

247. In further considering caloric as the cause of liquidity and vapor, it will be seen how influential the fact of latent, or specific, or combined heat proves, over several of the most important processes, which are incessantly going on in the vast laboratory of nature.

248. We shall take occasion to extract a few of the propositions, which we meet with in Dr. Henry's volumes on the subject of temperature, and heat connected with liquefaction. '1. The temperature of melting snow, or thawing ice, is uniformly the same at all times and in all places. 2. The sensible heat, or temperature of ice, of 32° Fahrenheit is not changed by liquefaction.' A thermometer in pounded ice stands at 32°, and at the very same point in the water, which results from the liquefaction of ice. '3. Yet ice, during liquefaction must absorb much caloric. Let it be recollected further, that 'the heat which is thus rendered latent, by the fusion, or liquefaction of various bodies, is not a constant quantity, but varies for each individual body, and that the absorption of caloric is often exten-

sively effected by admixture of another body with snow, while the snow is in the process of liquefaction. These effects of cold, producing mixtures are so interesting and important, that we shall extract the examples given of them, in the work to which allusion has just been made; adding some to them, from the same work, illustrative of the evolution or production of heat.

249. i. Dilute a portion of nitric acid with an equal weight of water; and when the mixture has cooled, add to it a quantity of light fresh fallen snow. On immersing the thermometer in the mixture, a very considerable reduction of temperature will be observed. This is owing to the absorption and intimate fixation, of the free caloric of the mixture, by the liquefying snow.

250. ii. Mix quickly together equal weights of fresh fallen snow, at 32° and of common salt cooled by exposure to a freezing atmosphere down to 32°. The two solid bodies on admixture, will rapidly liquefy; and the thermometer will sink 32°, or to 0; or according to Sir C. Blagden, (Philosophical Transactions lxxviii. 281) to 4° lower. To understand this experiment, it must be recollected that the snow and salt, though at the freezing temperature of water, have each a considerable portion of uncombined caloric. Now salt has a strong affinity for water, but the union cannot take place while the water continues solid. In order therefore, to act on the salt, the snow absorbs all the free caloric required for its liquefaction; and during this change the free caloric both of the snow and of the salt, amounting to 32° becomes latent, and is concealed in the solution. This solution remains in a liquid state at 0, or 4° below 0 of Fahrenheit; but if a greater degree of cold be applied to it, the salt separates in a concrete form.

251. iii. Most neutral salts also during solution in water, absorb much caloric, and the cold thus generated is so intense as to freeze water, and, even to congeal mercury. The former experiment, however, viz. the congelation of water may easily be repeated on a summer's day. Add to thirty-two drachms of water, eleven drachms of muriate of ammonia, ten of nitrate of potassa, and sixteen of sulphate of soda, all finely powdered. The salts may be dissolved separately in the order set down. A thermometer put into the solution, will show that the cold produced is at or below freezing; and a little water in a thin glass tube, being immersed in the solution will be frozen in a few minutes. Various other freezing mixtures are described in Mr. Walker's papers in the Philosophical Transactions, for 1787, 88, 89, 95, and 1801.

252. iv. Crystallized muriate of lime when mixed with snow, produces a most intense degree of cold. This property was discovered some years ago, by Mr. Lovitz, of St. Petersburgh, and has since been applied, in this country, to the congelation of mercury on a very extensive scale. The proportions which answer best are about equal weights of the salt finely powdered, and of fresh fallen and light snow. On mixing these together, and immersing a thermometer in the mixture, the mercury sinks with great rapidity. For measuring exactly the cold produced, a spirit thermometer, graduated to 50° below 0 of Fahrenheit or still lower should be employed. A few pounds are sufficient to congeal a large mass of mercury. By means of thirteen pounds of the muriate and an equal weight of snow. Messrs. Pepys and Allen, froze fifty-six pounds of quicksilver into a solid mass. The mixture of the whole quantity of salt and snow, however, was not made at once, but part was expended in cooling the materials themselves.

253. On a small scale it may be sufficient to employ two or three pounds of the salt. Let a few ounces of murcury in a very thin glass retort be immersed, first in a mixture of one pound of each and when this has ceased to act, let another similar mixture be prepared. The second will never fail to congeal the quicksilver. The salt thus expended may be again evaporated and crystallised for future experiments.

We now proceed to the illustration of the contrary principle, viz. that of evolving heat, and we shall continue as above proposed, to extract from the same author.

254. i. Water, if covered with a thin stratum of oil, and kept perfectly free from agitation, may be cooled down more than 20° below 32°; but in shaking it, or dropping into it a small fragment of ice, it immediately congeals, and the temperature rises to 32°.

255. ii. Expose to the atmosphere when at a temperature below freezing, (for example, at 25° Fahrenheit,) two equal quantities of water, in one only of which about a fourth of its weight of common salt has been dissolved. The saline solution will be gradually cooled without freezing to 4°. The pure water will then progressively descend to 32°, and will there remain stationary a considerable time before it congeals; yet while thus stationary, it cannot be doubted that the pure water is yielding caloric to the atmosphere, equally with the saline solution, for it is impossible that a warmer body can be surrounded by a cooler one without imparting caloric to the latter. The reason of this equable temperature is well explained by Dr. Crawford, on Heat, p. 80. Water, he observes, during freezing, is acted upon by two different powers; it is deprived of caloric by exposure to a medium whose temperature is below 32°, and it is supplied with caloric by the evolution of that principle from itself, viz. of that portion which constituted its fluidity. As these powers are exactly equal, the temperature of the water must remain unchanged till the caloric of fluidity is all evolved.

256. iii. The evolution of caloric during the congelation of water, is well illustrated by the following experiment of Dr. Crawford:—Into a round tin vessel put a pound of powdered ice, surround this by a mixture of snow and salt in a larger vessel, and stir the ice in the inner one till its temperature is reduced to + 4° of Fahrenheit. To the ice thus cooled, add a pound of water at 32°. One-fifth of this will be frozen; and the temperature of the ice will rise from 4 to 32°. In this instance the caloric evolved by the congelation of one-fifth of a pound of water, raises the temperature of a pound of ice 28°.

257. iv. If we dissolve sulphate of soda in

water, in the proportion of one part to five, and surround the solution by a freezing mixture, it cools gradually down to 31°. The salt at this point begins to be deposited, and stops the cooling entirely. This evolution of caloric during the separation of a salt, is exactly the reverse of what happens during its solution. *Blagden, Philosophical Transactions*, lxxviii. 290.

258. v. To a saturated solution of sulphate of potassa in water, or of any salt that is insoluble in alcohol, add an equal measure of alcohol. The alcohol attracting the water more strongly than the salt, retains it, precipitates the salt, and considerable heat is produced. *Henry.*

259. It can also be understood how important these laws and circumstances, with respect to the latency and evolution of heat, according as bodies pass from one form to another, are in the operations of nature. All persons are aware that a fall of snow after a continuance of cold, produces an atmospheric warmth, a fact which is occasioned by the evolution of heat consequent upon the formation of the snow; and the same principle of change and interchange of the evolution and absorption of heat will be found upon investigation to regulate or accompany the mutations that are incessantly going on both around and upon, and even within the earth. See METEOROLOGY.

260. It will easily be understood, from what has been advanced above, that caloric, whatever may be its nature, is a power diffused through every modification of matter—in fact through the whole material universe; that it is the cause of that condition of bodies called temperature; that it has a tendency to diffuse itself freely so as to produce a common temperature; but that different bodies, and even different forms of the same bodies, require very different quantities of heat in order to manifest the same temperature.

We now proceed to a further illustration of these principles by considering caloric as the cause of vaporization.

261. Throw as much heat as you please into water after it has once boiled, but you will not thereby make it one degree hotter, provided the experiment be made under the common pressure of the atmosphere; but if you subject the water to a pressure more powerful than that under which it naturally exists, you may then raise the temperature of the fluid above the boiling point, and the heating of it may indeed be carried to an almost unlimited extent, provided as the temperature becomes augmented you contrive an equivalent pressure. Now what is the cause of these effects? Why is it that we are not able to raise water, under ordinary circumstances, beyond 212° by any increment of heat? Because at this point of temperature the fluid in question assumes a new form: it becomes steam; this steam being at the same temperature with the water, but having a much larger capacity of heat than was possessed by the water, it becomes latent in it, or it becomes the heat of combination instead of the heat of temperature.

262. Now different fluids change into the vaporous or gaseous state at very different degrees of temperature, some indeed only requiring the common atmospheric heat to cause their vaporous existence, and these bodies therefore naturally exist in the aeriform state. But in all cases if we diminish atmospheric pressure we add to the facility of assuming this condition. Even water itself will boil, or in other words become steam, at a lower temperature when the barometer is at 28 inches, than when it is at 31. At the top of Mont Blanc, where the atmospheric pressure is comparatively small, Saussure found that it boiled at 187°, so that the heights of mountains, and even of buildings may be calculated by reference to the temperature at which water boils upon their summits. The following pleasing and simple experiment is given by chemists.

263. Insert a stopcock securely into the neck of a Florence flask, containing a little water; and heat it over a lamp till the water boils, and the steam freely escapes by the open stopcock; then suddenly remove the lamp and close the cock. The water will soon cease to boil; but if plunged into a vessel of cold water, the boiling immediately recommences, ceasing again if the flask be held near the fire.

264. The explanation of this phenomenon will immediately suggest itself to the reader. The confined steam over the surface of the water presses upon it and prevents ebullition; by cooling this steam it is reduced to water, the pressure is thus taken off and boiling recommences, from the heat being in sufficient quantity to cause ebullition without pressure.

265. We have spoken of steam and vapor as identical existences; but it may be said the former is visible, while the latter is not; it is only, however, when there is a degree of condensation in steam that it becomes at all visible; and this condensation is a reapproach to the fluid state. In like manner, we find dense fogs often produced when the weather becomes suddenly cold after having been very warm; the matter which is now fog, and therefore visible, having been vapor and invisible at the former high temperature of the atmosphere.

266. From what has been advanced, the inference will readily be made, that caloric communicates its repulsive power, as it is expressed, to matter; and that while this repulsive power tends to change the constitution of matter, it is chiefly counteracted by the pressure of the atmosphere; for were this removed many bodies which at present exist as liquids, would become gaseous; so that a similar effect will be produced in relation to the formative condition of matter by two causes, either by diminishing atmospherical pressure, or adding caloric. It has even been proved that water, by great pressure, may be heated to above 400° of Fahrenheit without boiling, while in vacuo it will assume the form of steam at a very low temperature. Then again under the common pressure of the atmosphere, pure æther will boil or become gaseous at 96°, while water requires 212°. So that as heat is the occasion of the resistance given to external pressure, so is the variety of existence in matter dependent upon the susceptibility of its being thus influenced by heat. Those bodies that are named permanently elastic fluids or gases, are parts of the

constitution of the material universe, which, require more than natural pressure on the one hand, or more than natural attraction of heat on the other, to convert them even into a fluid state.

267. It must be recollected, however, that both liquid bodies, and even solid ones that are in a certain degree porous, are capable of absorbing gases, but even during this absorption the temperature of the absorbing substance is raised in proportion to the amount and rapidity with which the gas becomes condensed or absorbed: the great law always obtaining, that sensible heat is increased in proportion as latent heat is diminished, and that latent heat is increased as sensible heat is lessened.

LIGHT.

268. When treating of the radiation of heat, we observed that several laws regulating it seem to be similar to those by which light is propagated; light and caloric have indeed been considered as modifications of the same radiant matter, one at any rate being a common source or accompaniment of the other, for bodies that are highly heated become at the same time luminous.

269. The chemist, however, finds reason to regard light and heat as possessed of different properties; caloric, as we have seen, pervades matter, and penetrates it, producing expansion, fluidity, and gaseous condition, and giving rise to the sensation of heat even when no illumination is excited. Light produces chemical changes in bodies which are by no means, to say the least, in the ratio of the degree of heat produced. Indeed, opposite effects of a chemical nature are in some cases produced by light and heat; as in the instance of nitric acid, which is changed into nitrous acid by exposure to light, while this last nitrous acid is converted into nitric by a proper application and due measure of heat.

270. It would be out of place here to treat of light in any other way than as a chemical agent, but it is necessary to state, that its influence as a chemical power is most important and extensive. As, however, its action is for the most part displayed in detaching oxygen from its combinations, it will be necessary to treat of this last principle before any discussion of the qualities of the agent now under notice, in reference to this particular, can be intelligible. We have already remarked, that light proves influential often in promoting crystallisation.

271. Light, in the state in which it reaches the eye, is not a simple body, but is divisible into seven primary rays, red, orange, yellow, green, blue, indigo, and violet; this division is effected by the prism upon a ray of white light, and, when they are collected by a lens into a focus, the ray of white or uncolored light is again produced. Now these rays, as separated by the prism, possess chemical properties of various powers, or rather of different degrees of power; and it has therefore been thought, that the solar beams consist of three distinct kinds of rays, viz. rays of illumination, calorific, and oxidising rays, and rays that are dis-oxidising or hydrogenating.

272. Light, though not penetrating and diffusive among the particles of matter in the same manner with heat, is yet capable in some instances of entering into a sort of combination with bodies, and in different degrees. In some cases it is absorbed by the body, and again evolved, unchanged, and without exciting any alteration of temperature, and without being attended by any circumstances analagous to combustion. Phosphorence, as it is termed, is an instance of this kind of absorption and evolution. The sea, when agitated in a dark night, often shows this phosphorence in a beautiful manner; the light from the glow-worm seems to have been received and to be emitted upon a similar principle. The extrication of light, however, from what are termed solar phosphori is materially influenced by temperature. Attrition also evolves light from phosphorescent bodies. Light too, as we have intimated, is disengaged in various chemical circumstances, where nothing like combustion obtains. 'Thus fresh prepared pure magnesia added suddenly to highly concentrated sulphuric acid, exhibits a red heat.'

273. For measuring the relative intensities of light from various sources, an instrument has been contrived called the photometer. It is constructed on the principle that the power of a burning body to illuminate any defined space is directly as the intensity of the light, and inversely as the square of the distance. If two unequal lights shine on the same surface at equal obliquities, and an opaque body be interposed between each of them and the illuminated surface, the two shadows must differ in intensity or blackness; for the shadow formed by intercepting the greater light will be illuminated by the lesser light only; and reversely, the other shadow will be illuminated by the greater light; that is, the stronger light will be attended by the deeper shadow. But it is easy, by removing the stronger light to a greater distance, to render the shadow which it produces not deeper than that of the smaller, or of precisely the same intensity. This equalisation being effected, the quantity of light emitted by each lamp or candle, will be as the square of the distance of the burning body from the white surface.

274. The photometer of Mr. Leslie is founded on a different principle, viz. that light, in proportion to its absorption, produces heat. The degree of heat produced, and consequently of light absorbed, is measured by the expansion of a confined portion of air. A minute description of the ingenious instrument contrived by Mr. Leslie with this view, may be seen in his work on Heat, or in the third volume of Nicholson's 4to. Journal.

275. In its construction it bears a considerable resemblance to the differential thermometer (see THERMOMETER); and Mr. Brande has ascertained that by substituting æther, as in Dr. Howard's modification of the differential thermometer, the sensibility of the photometer is greatly increased, and that it becomes most delicately susceptible of the impression of light. An instrument of this sort he found fully adequate to determine the comparative illuminating powers of different gases which cannot be done when the photometer is filled with air *Henry*. See also OPTICS.

ELECTRICITY AS A CHEMICAL AGENT.

276. As a chemical agent we say, for it is only in this point of view that the power demands consideration in the present treatise; it is however necessary to describe generally the mode in which electricity is manifested or elicited, first in respect to those circumstances to which the adjective electrical would more strictly apply; and secondly to what is called galvanic or voltaic electricity.

277. If a glass rod be rubbed with a piece of dry silk, light will soon start out from its surface; and if we then present to it some light bodies, as pieces of straw, these will be first attracted and then repelled. The same condition of surface will be produced by rubbing a piece of sealing-wax with dry and warm flannel. In these cases the glass rod or the stick of sealing-wax are said to be electrically excited, and, when in a dark room, a luminous appearance always manifests itself in the bodies thus heated. All bodies, however, are not susceptible of being brought into this condition. Hence the distinction, in relation to electricity, of bodies into two classes, namely, electrics, and non-electrics; the first affording electricity from friction, the non-electrics being unsusceptible of this excitation.

278. Bodies too, in relation to electricity, are divided into conductors and non-conductors, the latter being in fact electrics, and therefore incapable of conducting or carrying off the excited power, while a body which has the power of thus conducting electricity, is necessarily not in an electric state, and therefore is a non-electric or conductor. Glass, resinous substances, sulphur, oils, and aeriform fluids are the principal non-conductors or electrics, while the non-electrics or conductors are metals, earthy and saline substances, and water.

279. Bodies are considered further in their electrical states as positive or negative. When for example glass is rubbed with silk, a portion of electricity parts from the silk and enters the glass; the glass in this way becomes positive, and the silk negative. Now it is conceived, that as in the instance of heat so with regard to electricity, all bodies contain it, but that the phenomenon of its excitation or manifestation depends upon its equilibrium being disturbed; the bodies either acquiring more or less than their natural or orderly proportion.

280. Electricity is intimately connected both with heat and light; its production of heat seems dependent greatly on the resistance which a body may oppose to its transmission; yet the heat which it excites may be considered as in some sort peculiar, since the fusibility of metals from the electric action is not in a degree proportionate to the heat applied.

281. That light is connected with electric excitation is shown by the luminous spark which attends the transmission of the power from one conductor to another, and it has already been stated, and we shall immediately more particularly show, how influential it proves over chemical combination, and chemical surface altogether; indeed, as stated in the first part of the present treatise (see 169), the agent in question, especially as excited into operation by the means immediately to be mentioned, has been brought into most comprehensive and successful requisition, for the purpose of unfolding some of the leading facts, the development of which has proved of most momentous bearing upon chemical science and art generally.

VOLTAIC, OR GALVANIC ELECTRICITY.

282. Galvani was the first who accidentally observed, that contractions were excited in the limbs of frogs, by applying a conductor of electricity to the nerves and muscles of the animal. He inferred from this observation, that the two parts are in different states of electricity; the one positive and the other negative, and that the application of the conductor occasions the discharge producing the muscular contraction. But Volta took a different view of the subject, he proved indeed that Galvani's hypothesis was unstable, by exciting contractions in consequence of establishing a connexion between different parts of a muscle or of a nerve; and that to produce the effect, two different metals are necessary; he showed also that in a similar way sensations can be excited; that when one metal, for example, is applied to the under surface of the tongue, and another to the upper surface, on bringing their edges into contact, or connecting them by a conductor, a peculiar taste is felt.

283. For some time, says Dr. Murray, the prosecution of these experiments, and the discussion of the questions they involved, engaged the attention of philosophers; at length the capital discovery, by Volta, of a mode of augmenting greatly the Galvanic energy, demonstrated the falsity of the hypothesis, that its production is a process of vitality, introduced into science a new principle, and conferred on chemistry an instrument of nearly unlimited power. And this discovery, it deserves to be remarked, was not the result of accident, and scarcely in any degree of the progress of the department of knowledge with which it was connected; it was the fruit of preconceived theory, or rather hypothesis, and, but for the application of that theory, might for ever have remained unknown. In this respect the pile of Volta stands unrivalled in the history of philosophy.

284. Under the word ELECTRICITY, in this Encyclopædia, will be found a more particular history and account of Galvanism, as it is most commonly termed; but the importance of the subject, in its bearing upon chemical science, makes it expedient that even in this place we give a succinct statement of its leading principles.

285. Dr. Henry, in his Elements of Experimental Chemistry, treats of Galvanism under the following several items :—

i. The construction of Galvanic apparatus, and the circumstances essential to the excitement of this modification of electricity.

ii. The facts which establish its identity with the electricity excited by ordinary processes.

iii. The agency of the electric or Galvanic fluid (power?), in producing chemical changes.

iv. The theory by which these changes in the present state of our knowledge are best explained.

v. The hypotheses, which have been framed to account for the origin of the electricity, excited by galvanic arrangements. And,

vi. A general view of the phenomena of electrico-magnetic motion, which, with the principles deducible from them, promise to throw light on some of the most interesting, but obscure operations of nature.

It will be for us to abridge the account of Dr. Henry.

286. It has been stated above, that electricity is excited by friction; but in Voltaic electricity friction is not necessary. All that is required is the simple contact of different conducting bodies with each other; and it has even been found by Dessaignes that two discs of the same metal, heated to different temperatures, give sufficient electricity to excite contractions in the legs of a frog prepared for the purpose. Conductors of electricity have been divided into perfect and imperfect, the former comprehending the metals plumbago and charcoal, the mineral acids, and saline solutions; the latter, or imperfect, including water, alcohol and ether, sulphur, oils, resins, metallic oxides and compounds of chlorine.

287. The least complicated galvanic arrangement, is termed a simple galvanic circle. It consists of three conductors, two of which must be of the one class, and onè of the other class. In the following tables, constructed by Sir H. Davy, some different simple circles are arranged in the order of their powers, the most energetic occupying the highest place; or, what is of more importance, being most readily oxydated.

288. Table of some electrical arrangements which by combination form Voltaic batteries, composed of two conductors, and one imperfect conductor.

Zinc, Iron, Tin, Lead, Copper, Silver, Gold, Platinum, Charcoal.	Each of these is the positive pole to all the metals below it, and negative with respect to the metals above it in the column.	SOLUTIONS OF Nitric acid, Muriatic acid, Sulphuric acid, Sal.ammoniac, Nitre, Other neutral salts.

289. Table of some electrical arrangements, consisting of one perfect conductor, and two imperfect conductors.

SOLUTION OF Sulphuret of potassa, Potassa, Soda.	Copper, Silver, Lead, Tin, Zinc, Other metals, Charcoal.	Nitric acid, Sulphuric acid, Muriatic acid, Any solutions containing acid.

290. In explanation of these tables, Sir H. Davy, observes, that in all cases, when the fluid menstrua afford oxygen, those metals which have the strongest attraction for oxygen, are those which form the positive pole. But when the fluid menstrua afford sulphur to the metals, the metal, which under the existing circumstances has the strongest attraction for sulphur, determines the positive pole. Thus in a series of copper and iron plates, introduced into a porcelain trough, the cells of which are filled with water, or acid solutions, the iron is positive and the copper negative; but when the cells are filled with solutions of sulphuret of potassa, the copper is positive and the iron negative. When one metal only is concerned, the surface opposite the acid is negative, and that in contact with solution of alkali and sulphur, or of alkali is positive. *Elements of Chem. Phil.* p. 148.

291. *Of Simple Galvanic Circles.*—When a piece of zinc is laid upon the tongue, and a piece of silver under it, no sensation is excited while the metals are kept apart; but immediately that you bring them into contact a metallic taste is perceived. This instance affords an example of the arrangement of two perfect conductors, which are the metals, with one imperfect one, the tongue, or rather the fluids which the tongue contains. The metallic taste would seem to be occasioned by the excitement of a small quantity of electricity, from the contact of the metals, and its action on the nerves of the tongue.

292. *Compound Galvanic Circles, or Galvanic Batteries.*—The principle of these is the multiplication of simple ones. Thus if, between a plate of zinc and of silver, a piece of moistened cloth, of the same size with these plates, be interposed, and brought into contact, a simple galvanic circle is formed, as in the instance above adduced; but if these be piled on each other, in the order of zinc, silver, cloth, for several repetitions, we obtain a galvanic battery, termed from its discoverer the pile of Volta. The power of such a combination is sufficient to give a smart shock, as may be felt by grasping in the hands, which should be previously moistened, two metallic rods, and touching with these the upper and lower extremity of the pile. The shock may be renewed at pleasure, until after a few hours the activity of the pile begins to abate, and finally ceases altogether.

293. The metals composing a galvanic battery may be more conveniently arranged in the form of a trough; a happy invention of Mr. Cruikshank: in a long and narrow wooden trough, made of baked wood, grooves are cut opposite to, and at the distance of between one-third and three-quarters of an inch from, each other; and into these are let down, and secured by cement, square plates of zinc and copper, previously united together by soldering. The space, therefore, between each pair of plates forms a cell for the purpose of containing the liquid, by which the combination is to be made active. When constructed in this way the trough affords an example of a galvanic combination of the first kind (see the first table above), formed by two perfect, and one imperfect conductor. But it admits of being modified, by cementing into the grooves plates of one metal only, and filling the cells alternately with two different liquids, as diluted nitric acid, and solution of sulphuret of

potassa. In this case we have a battery of the second order, formed by the repetition of one perfect and two imperfect conductors. See the second table above.

294. Other modifications of these galvanic apparatuses will, as above intimated, be described in the article ELECTRO-GALVANISM. Here it may be sufficient to add, using the words still of the author whom we are following, that every combination which is capable of forming a simple galvanic circle, may, by sufficient repetition, be made to compose a battery. The combinations also which are most active in simple circles are observed to be more efficient in compound ones.

295. To construct a battery of the first order, it is essential that a fluid be employed which exerts a chemical action upon one of the metals. Pure water, entirely deprived of air, appears to be inefficient. In general, indeéd, the galvanic effect is within certain limits proportioned to the rapidity with which the more oxidable metal is acted upon by the intervening fluid. The fluid generally used is nitric acid, with twenty or thirty times its weight of water. A battery which has ceased to be efficient has its activity renewed by emptying the cells of their liquor, and uncovering the plates: when the cells are filled with diluted nitric acid, the apparatus continues active, even under the exhausted receiver of an air-pump, or in an atmosphere of carbonic acid or nitrogen gases. But if the cells be filled with water only, all action is suspended by placing it under any of these circumstances. Hence it appears that the oxidation of one or both of the metals composing the trough is essential to the excitement of galvanic electricity.

296. *Are Galvanism and Electricity identical powers?*—In adverting to, and discussing this question, Dr. Henry points out the following striking resemblances:

i. The sensation produced by the galvanic shock is extremely similar to that which is excited by the discharge of a Leyden jar. Both influences also are propagated through a number of persons without any perceptible interval of time.

ii. Those bodies which are conductors of electricity are also conductors of the galvanic fluid (galvanism?) as the metals, charcoal, and a variety of liquids. Again, it is not transmitted by glass, sulphur, and the whole class of electrics, which do not convey ordinary electricity. Among liquids, those only are conductors of electricity and galvanism which contain oxygen as one of their elements.

iii. The galvanic fluid passes through air, and certain other non-conductors, in the form of sparks, accompanied with a snap or report; and, like the electric fluid, it may be made to inflame gunpowder, phosphorus, and mixtures of oxygen and hydrogen gases.

iv. The Voltaic apparatus is capable of communicating a charge to a Leyden jar, or even to a battery. If the zinc end of a pile, whether it be uppermost or the contrary, be made to communicate with the inside of a jar, it is charged positively. If circumstances be reversed, and the copper end be similarly connected, the jar is charged negatively. The shocks do not differ from those of a jar or battery, charged to the same intensity by a common electrical machine.

v. Galvanism, even when excited by a single galvanic circle only, such as a piece of zinc, a similar one of copper, and a piece of cloth, moistened with a solution of muriate of ammonia, distinctly affects the gold leaf of the condensing electrometer. If the zinc end be uppermost, and be connected directly with the instrument, the electricity indicated is positive; if the pin of the electrometer touch the copper, the electricity is negative. A pile, consisting of sixty combinations, produces the effect still more remarkably.

vi. The chemical changes produced by galvanic and common electricity, so far as they have hitherto been examined, are precisely similar. On this last proposition it is necessary to dwell more particularly, and, in so doing, we shall still follow the author from whom, in the present section, we have already so largely extracted.

297. The most simple chemical effects, produced alike by the agency of electricity and galvanism, is the ignition and fusion of metals; when, indeed, the galvanic power is excited to a considerable extent, metallic wires may be ignited and fused, as is the case with a strong electric battery; but, in the former instance, the particles of the wire are not scattered to a distance, as they are in the latter, since electricity seems to act with greater violence than galvanism. Actual combustion, also, of metallic wires may be effected both by electricity and galvanism.

298. But a much more remarkable action is exerted by the elective and galvanic fluids in disuniting the elements of several combinations. One of the first discoveries of the chemical agency of the pile, was its power of decomposing water. Two piles of any metallic wire are thrust through separate corks, which are fitted into the open ends of a glass tube, in such a way that the extremities of the wires, when the corks are in their places, may not be in contact, but may be at the distance from each other of about a quarter of an inch.

299. If the parts of the wire which project from without the tube, be made to communicate the one with the zinc or positive end, and the other with the copper, or negative end of a galvanic battery, a remarkable appearance takes place. The wire connected with the zinc, or positive end of the pile or trough, where it is in contact with the water, if an oxidable metal is rapidly oxidised, while from the negative wire a stream of small bubbles of gas arises. But if the wires employed be of a metal which is not susceptible of oxidation, such as gold or platina, gas is then extricated from both wires, and may be separately collected.

300. When a stream of galvanic electricity is made to act upon confined water, oxygen gas is given out at the positive end and hydrogen at the negative end, and in the proportions which by their union compose water. At an early

period of the enquiry it was found, however, by Mr. Cruikshank, that the water surrounding the positive wire became impregnated with a little acid, and that round the negative wire with a little alkali.

301. It was afterwards discovered, by Sir H. Davy, that the gases constituting water may be separately produced from two quantities of water not immediately in contact with each other; this very important discovery evinced the transference of the elements of a combination to a considerable distance, through intervening substances, and in a form that escapes the cognisance of our senses. But not only the elements of water but saline compositions and even metallic salts were decomposed in the same way by Sir H. Davy, the acid element of the salt being always collected at the positive, and the earthy or alkaline one at the negative side of the arrangement. Sir H. Davy even found that acids by galvanic excitation may be made to traverse opposite principles without combination, or be transferred through solutions of alkali, from the negative to the positive side, while on the other hand alkalis and metallic oxides were found transmissable from the positive to the negative side, through intervening solutions of acids.

302. These very singular and very momentous discoveries rendered clear what before seemed difficult of explanation, viz. why, by the agency of galvanism on water, alkali appears at the negative and acid at the positive wire. Sir H. Davy ascertained that all water, however carefully distilled, contains neutral salts in a state of solution. From these impurities the alkaline and acid elements are separated, agreeably to a law which has already been explained. In the same way, also, the muriatic acid and alkali are accounted for, which some chemists have obtained by galvanising what was before considered as pure water; a fact which has been urged in proof of the synthetic production of both these bodies. Absolutely pure water, it has been demonstrated by Sir H. Davy, yields nothing but hydrogen and oxygen gases. See HYDROGEN in the present treatise.

303. Now it has been shown that ordinary electricity, properly managed, is equal to the production of these curious decompositions; and it is fair to conclude, that galvanism and electricity are modifications of the same power.

304. A most important inference has been deduced from the discovery of these facts, viz. that hydrogen, alkalis, metals, and oxides, exist in a positively electrified state, and therefore will be repelled by surfaces which are in the same condition with themselves; that they will, on the contrary, be attracted by surfaces that are negatively electrified; and oxygen, as also the acids, in consequence of the oxygen they contain, being in a negative state, will be attracted by positive surfaces, and repelled by negative ones.

305. To apply this theory to the simplest possible case, the decomposition of water, the hydrogen of this compound being itself positively electrified, is repelled by the positive wire, and attracted by the negative one, while, on the contrary, oxygen being negative, is repelled by the negative wire, and attracted by the positive one. The flame of a candle, which consists chiefly of ignited charcoal, when placed between a positive and negative surface, bends towards the latter, but the flame of phosphorus, consisting chiefly of acid matter, when similarly placed, takes a direction towards the positive surface. In the case of neutral salts, the negative acid is attracted by the positive wire, and the positively electrified alkali by the negative wire.

306. Thus then, continues our author, a power has been discovered, superior in its energy to chemical affinity, and capable either of counteracting it, or of modifying it according to circumstances. The chemical attraction between two bodies may be destroyed by giving one of them an electric state, opposite to its natural one; or the tendency to union may be increased by exalting the natural electrical energies.

Further remarks on the theory of the galvanic arrangement, and on the points on which there is a seeming difference between Voltaic and common electricity, will best be discussed under the articles ELECTRICITY and GALVANISM, to which we refer the reader.

PART III.

307. Having thus investigated, to the extent of our limits, the general laws and principles of chemical action, we are now to proceed in our enquiries respecting the individual substances, and their diversified compounds, the consideration of which comes under the cognisance of chemical philosophy; indeed, the whole world of matter, as far as composition is concerned, lies before us; there is nothing with which, in a certain way, the chemist has not to do; and, as far as arrangement is concerned, we should now, had we been writing but some few years since, have adopted an arrangement of this vast mass of materials, something similar, if not quite the same, as that pursued by Dr. Murray, in his excellent work. We should have proceeded to treat of atmospheric air, or at least have here referred the reader to that portion of the work in which it is treated of; we should then have gone on to the consideration of water, and its base; to acids, their bases and composition; to alkalis with their bases; to earths, and their bases; metals, and their combinations; and thence into the three great divisions of matter, mineral, vegetable, and animal.

308. The very curious and extensively operating circumstances to which we have just referred at the end of the preceding section, have, however, given rise to a modification of these arrangements, founded on the principle that bodies are divisible into two great classes, viz. electro-negative, and electro-positive. Upon such assumption is founded the division and arrangement which Dr. Henry adopts; and it appears, to say the least, to have this in its favor, that the student finds all along as he goes, more clear and decided illustrations of the magnificent discoveries of modern times, and has a better opportunity furnished him for appreciating these discoveries, and of applying them to their respective purposes.

309. This arrangement, therefore, we shal'

likewise, to a certain extent, adopt, although it may be open, as what artificial classification is not? to some objections; it of course leaves untouched the animal and vegetable kingdoms, or the materials of organic existence, which therefore, as in other treatises, will fall to be considered separately, and after inorganic existence shall have been disposed of. The objections which apply to the subdivisions, till recently very generally observed, of combustible and non-combustible, will be best stated, because most easily understood, as we proceed in our investigations.

310. Electro-Negative Bodies.—*Oxygen.* This is only known as a separate principle in a gaseous state of existence, and even in this state it is combined with caloric; in the article Air several substances are mentioned as those from which oxygen gas may be obtained, and it is there stated, that the chlorate of potass yields it in the greatest purity. We have likewise given in that paper the general character and habits of oxygen, which need not be here repeated.

311. Oxygen was long supposed to be the only supporter of combustion, and in the Lavoisierian theory it was treated of as essential to that process. It is now found, however, that other bodies are equally entitled to rank as supporters of combustion, among which are chlorine and iodine. The hypothesis of combustion proposed by the French philosophers, has indeed been found altogether unstable, both as it respects the supposed necessity of oxygen for the process, and its condensation, and as it endeavoured to explain the heat and light at times evolved. Numerous are the instances in which oxygen, in the process of combustion, instead of being solidified, actually becomes gaseous during the operation; the light, moreover, depends upon the combustible, and not upon the measure of oxygen consumed, and there are several cases of combustion, as just intimated, in which no oxygen is present. Combustion is much more probably dependent upon the electrical conditions of bodies, and ought at any rate to be considered rather as an intense chemical action generally, than dependent, as Lavoisier conceived, upon a particular principle or form of matter. It will be inferred from what has been advanced above, that all bodies acting powerfully upon each other are in the opposite electrical states, and heat and light may be evolved as a consequence of the annihilation of these opposite conditions, occasioned by their combination.

312. Substances capable of combining with oxygen, afford one or other of the following products: 1. An acid. 2. An alkali, or earth, or 3. An oxide.

313. We have already observed (see Acid) that the theory of Lavoisier, which regarded oxygen as the universal principle of acidity, is not consistent with more recent observations and discoveries; but that acids are often the product of oxygenation will be seen as we proceed. It is not easy, as we have before remarked, to give very precise definitions of acids, since some bodies have all the other characteristics of acids at the same time that they do not impart sourness to the taste: of the alkalis and earths too there is some want of precision in respect of their distinctive designations, but they are generally known by their tendency to combine with the acids, and by this union losing their individual characters. See Alkali and Earth.

314. Oxide is a term applied to bodies that have a less quantity of oxygen united to them than that which is sufficient to produce acidity; these bodies may often be brought to the condition of positive acidity by causing them to combine with more oxygen, and the loss of the acidifying portion of oxygen may be again so managed, and effected only in such quantity, as that the acid shall be reduced to a state of oxide.

315. *Chlorine.* This substance was discovered by Scheele in 1774. It was named by the discoverer dephlogisticated muriatic acid. In the French nomenclature it was denominated oxygenated muriatic acid. It may be obtained in a gaseous form, by mixing black oxide of manganese with muriatic acid, and heating the mixture over a lamp in a glass retort. The gas is soon evolved, and may be collected over warm water very conveniently; cold water soon absorbs it.

316. A mixture of eight parts of muriate of soda, three of black oxide of manganese, four of sulphuric acid, and four of water will, if properly heated, evolve chlorine.

317. This gas has a pungent and disagreeable smell of a suffocating kind, and it is of a yellowish green color, hence its name from χλωρος, green.

318. It is heavier than common air; when dry it suffers no change by being subjected to the most intense cold; but in its common state it may be condensed into a liquid form, and, when exposed to a freezing temperature, the aqueous part of the gas is deposited in the form of crystals; this, however, is again taken up by the gas upon the re-application of heat.

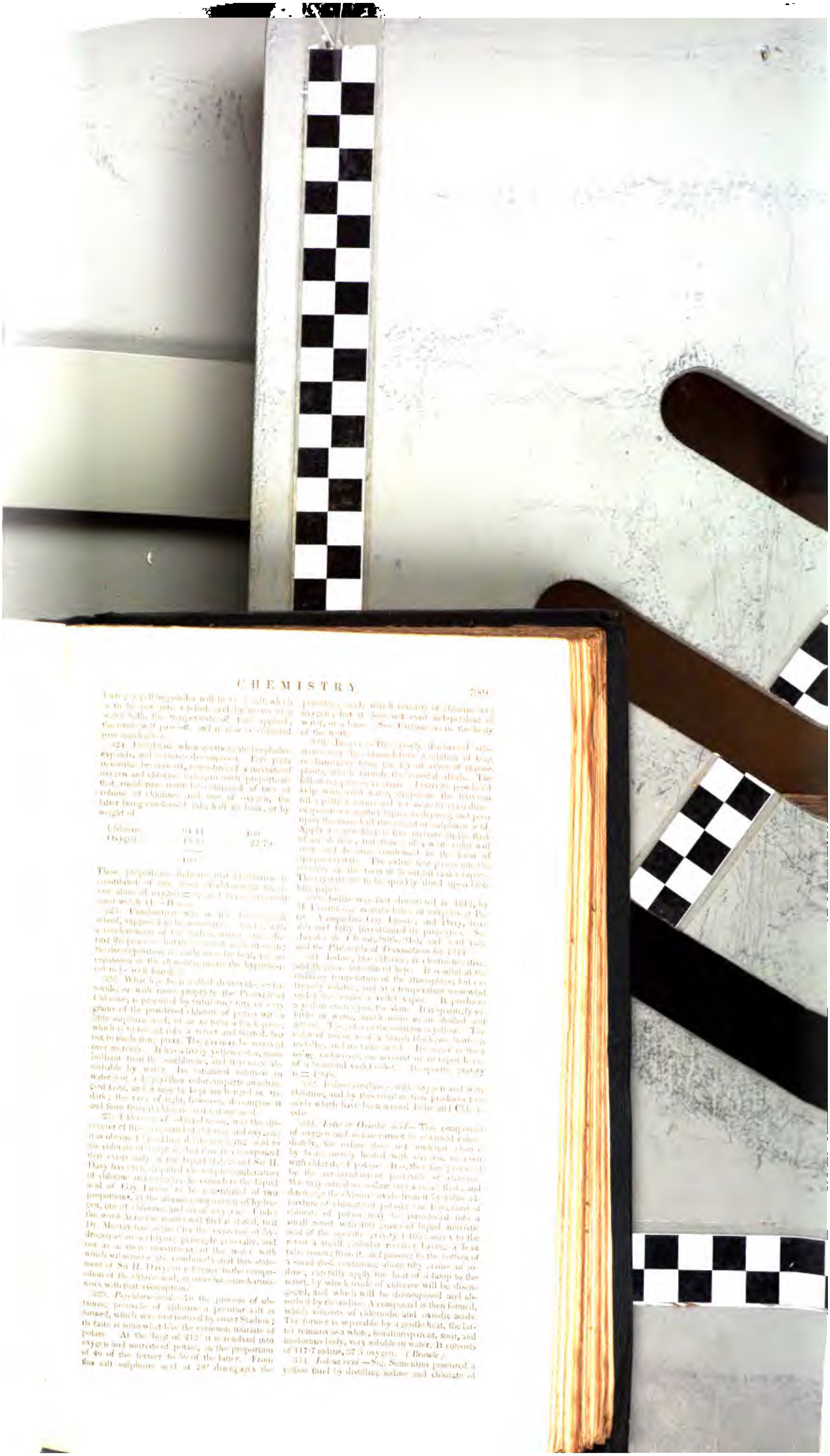
319. Chlorine is not altered by exposure to very high temperatures. When it is suddenly and greatly condensed, by mechanical pressure, heat and light are evolved. Electricity does not alter it. When a burning taper is introduced into a jar of chlorine, the flame becomes immediately red, a dense smoke is emitted from it, and it is soon extinguished. But many bodies, such as phosphorus, and even several of the metals, when finely powdered, are spontaneously ignited upon being immersed in chlorine, and burn in it very brilliantly. The combustion indeed of phosphorus in this gas is vehement.

320. Chlorine is heavier than common air, 100 cubic inches weigh 75·375 grains.

321. It was once imagined, as may be inferred from its former names, to be composed of oxygen and muriatic acid. It is now treated of as a simple body; and the fact of its not being changed by electricity is in favor of this supposition.

322. Chlorine and oxygen unite so as to form oxides and acids.

323. The euchlorine or protoxide of chlorine was discovered by Sir H. Davy; it may be obtained by mixing muriatic acid with chlorate of potass, and stirring the mixture with a platinum



potass together in equal parts, after trituration in a porcelain mortar. This fluid has an acid, astringent taste, and the name iodous acid has been given to it; but the proportion of its elements has not been ascertained. *Quarterly Journal of Science and Art*, xvii. 381.

335. *Chloriodic acid*, or as it is called by Gay Lussac *chlorure of iodine*, is obtained by the direct action of chlorine upon iodine, iodine absorbing less than one-third of its weight of chlorine; the union produces crystals of a deep orange color. Gay Lussac states indeed that two compounds are the result of this combination, the one, as noticed, of a deep orange color, the other an orange red, the largest portion of chlorine being contained in the first.

336. Chloriodic acid precipitates the salts of iron and other metals.

337. *Nature of Iodine* (From Dr. Henry's Elements). Iodine, from all that we yet know respecting it, is to be considered as a simple or elementary body, having a very striking analogy with chlorine, which it resembles, firstly, in forming one acid by uniting with hydrogen, and a different acid with oxygen; secondly, in its effects on vegetable colors; thirdly, in its affording with the fixed alkalis, salts, which nearly approach in character to chlorates; and fourthly, in its electrical habits. Its discovery indeed lends strong support to that theory which considers chlorine as a simple body, and muriatic acid as a compound of chlorine and hydrogen. In the property of forming an acid, whether it be united with hydrogen or oxygen, iodine bears also an analogy to sulphur; and it is remarked by Gay Lussac of the combinations of chlorine, iodine, and sulphur, with the elements of water, that while the acids which they respectively form with oxygen have their elements strongly condensed, those formed with hydrogen have their elements very feebly united. Sulphur has the strongest affinity for oxygen, then iodine, and lastly chlorine. But for hydrogen, chlorine has a stronger attraction than iodine, and iodine than sulphur; whence it appears that the affinity of each of those bodies for oxygen is inversely proportionate to its affinity for hydrogen.

338. *The source of iodine in nature* has been investigated by M. Gaultier de Claubry. His first experiments were directed to the several varieties of fucus, the combustion of which furnishes the soda of sea-weeds. Before these vegetables are destroyed by combustion he ascertained that iodine exists in them, in the state of hydriodate of potassa; and that calcination only destroys the vegetable matter with which it is combined. As the hydriodate of potassa is a deliquescent salt, it remains in the mother liquor after separating the carbonate of soda, and most of the other salts, by crystallisation. In the course of these experiments M. De Claubry found that starch is one of the most delicate tests of the presence of iodine, and if added to any liquid containing it, with a few drops of sulphuric acid, iodine is indicated by a blue color of greater or less intensity. In this way he detected iodine in the decoction of several varieties of fucus; but he was unable to discover the slightest trace of it in sea-water. The fucus saccharinus yielded it most abundantly; and, in order to obtain it by the cheapest and easiest process, he recommends that we should submit this fucus, dried and reduced to powder, to distillation with sulphuric acid.

339. In the Addenda to Dr. Henry's Elements, we meet with the following additional notification in reference to the source &c. of iodine: 'The only known sources of iodine were certain vegetables and some marine molluscæ, till Vauquelin discovered it a few months since in the specimen of a mineral, sent from Mexico, under the name of 'Virgin silver from Serpentine.' The best method of separating the iodine from this substance was found to be as follows: Five parts of the pulverised mineral were heated with two parts of caustic potassa, and a little water to facilitate the mixture; and kept some time in fusion. The mass was washed with water till the latter ceased to become alkaline; a portion of the liquor saturated with nitric acid has the property of rendering starch blue, when a few drops of solution of chlorine had been previously added. Of the portion insoluble by water, diluted nitric acid dissolved a part with effervescence; but there remained a yellowish substance resembling chloride of silver, which became orange colored by heat, and passed to a greenish yellow on cooling. This substance was iodine of silver.

340. The alkaline liquor afforded hydriodate of potassa, by saturating the alkali with sulphuric acid, evaporating to dryness, and adding alcohol, which took up the hydriodate only, leaving the sulphate of potassa. The whole iodine thus extracted from 100 grains of the ore, Vauquelin calculates at 18¼ grains; and on reviewing the composition of the ore, the other ingredients of which were sulphur, lead and silver, he considers it as most probable that all the iodine contained in the native mineral was united with the latter metal. It is probable that with this clue to more perfect analysis, iodine will be found in other minerals, and especially in ores of silver, for which metal it has like chlorine a strong attraction. *Ann. de Chym. et de Phys.* xxix. 991.

341. Fluorine. This is a principle which has not hitherto been obtained in a separate state; it seems to be united with hydrogen in the fluoric acid; this acid, like the muriatic, appears to be composed of hydrogen, and a peculiar base, which base in the instance before us, has been denominated fluorine by Sir H. Davy; and phtore from φθοριος, destructive, by Ampére: it possesses a negative electric energy, which is proved by its being determined to the positive pole.

342. It exists in the fluor spar, a mineral found in great beauty and abundance in Derbyshire. This spar is stated to be composed of twenty calcium, and 17·1 fluorine. See Fluoric Acid.

343. Electro-Positive Bodies.—The bodies which fall now to be considered have been usually classed as inflammable or combustible; to this appellation, Dr. Henry very properly states, that the same objection exists as to that of supporters of combustion. Against our author's own classification, it may, however, be objected that the title of electro-positive includes all substances with the exception of the few just noticed. Dr. Henry, indeed, anticipates this objection, and

proposes a subordinate division of elementary bodies, that is of those bodies which have not hitherto been resolved into a more simple state.

344. i. Those which by combining with oxygen, chlorine, or hydrogen, are capable of being converted into acids, but which have no metallic properties.

345. ii. Those which either decidedly rank as metals, or are so nearly allied to metals in their general habitudes, as to render it improper to assign to them any other place in a chemical arrangement. In the class of metals will be found a few bodies which yield acids when united with oxygen; and one or two which are even acidified by combination with hydrogen.

346. One great advantage, as it appears to us, in adopting this arrangement, is, as above-intimated, that it preserves in the student's mind a constant recollection of the great principles of electro-chemical science, and of the immense benefit these new views have already conferred on chemistry, and still promise to confer.

347. In Mr. Brande's Manual, which cannot be too highly recommended to the student, the following substances are introduced for consideration in his division, under the title of Simple Acidifiable and Inflammable Substances; and he prefaces the notice of them by stating 'that the bodies belonging to this class are electro-positive, and consequently, when separated from their combinations with the substances described in the last chapter, (oxygen, chlorine, iodine), by Voltaic electricity; they are attracted by the negative surface. With very few exceptions they combine with the three supporters of combustion already described, and of these compounds one or more are acids. They are six in number. 1. Hydrogen. 2. Nitrogen. 3. Sulphur. 4. Phosphorus. 5. Carbon. 6. Boron. The plan that we are about to pursue will lead to the investigation of these bodies and principles, almost in the direct order, thus adopted by Mr. Brande. They are all acidifiable, but not all in strict propriety combustible or inflammable bodies.

348. HYDROGEN. See AIR, p. 381.—Hydrogen exists in a state of gas, or, in other words, it is combined with caloric, and probably with electricity and light, to such an extent as to occasion its gaseous constitution, and from this combination we cannot separate it any other way than by causing it to combine with some other substance. This gas was first attentively examined by Mr. Cavendish; it was formerly termed inflammable air. It may be prepared by the action of dilute sulphuric acid upon iron filings or upon zinc. The gas will escape, and may be collected in the usual manner. Mr. Donovan has proposed, in order to purify the gas from admixture with sulphuretted hydrogen and carbonic, that we should first agitate common hydrogen with lime water during a few minutes; next with a little nitrous acid; afterwards with a solution of green sulphate of iron, and finally with water. Dr. Henry, in alluding to this proposal, says it appears to him that the carbonic acid, and sulphuretted hydrogen, may equally well be removed by the simple process of washing the crude gas, either with lime-water or with a solution of caustic potass.

349. For the properties and peculiarities of hydrogen gas, we refer to the article AIR; but we may quote in this place an illustration which is given in Dr. Henry's work, of the fact that elastic fluids or gases penetrate each other, and become thoroughly mixed under all circumstances; in this, differing from common or inelastic fluids (liquids) which are capable of a remaining in contact with each other for a long time without admixture.

320. 'Provide two glass vials, each of the capacity of about an ounce measure, and also a tube open at both ends, ten inches long, and 1-20th inch bore. At each end the tube is to be passed through a perforated cork, adapted to the necks of the vials. Fill one of the bottles with hydrogen gas, and the other with oxygen gas; place the latter on a table with its mouth upwards; and into this insert the tube secured by its cork. Then holding the hydrogen bottle with its mouth downwards, fit it upon the cork at the top of the tube. The two bottles thus connected, are to be suffered to remain in this perpendicular position. After standing two or three hours, separate the vials and apply a lighted taper to their mouths, when it will almost certainly occasion an explosion in both. The hydrogen gas, though sixteen times lighter than the oxygen, must, therefore, have descended through the tube from the upper into the lower vial; and the oxygen gas, contrary to what might have been expected from its greater weight, must have ascended through the tube, and displaced the lighter hydrogen.'

351. *Hydrogen and Oxygen. (Water.)*—Mix two volumes of hydrogen gas with one volume of oxygen gas, and inflame the mixture by the electric spark in a proper apparatus; the gases will by this treatment disappear totally, and the inner surface of the vessel will be moistened with a fluid which will be found to be pure water, and equal in weight to the gases which have disappeared.

352. Again, expose pure water to the action of Voltaic electricity, and you resolve it into hydrogen, which will be disengaged at the negative pole, and oxygen will be disengaged at the positive pole; the hydrogen will be two volumes, the oxygen one, so that water is demonstrated both by synthesis and analysis to be formed of hydrogen and oxygen, in the proportion of two volumes of the former to one of the latter.

353. Under the word WATER, in the body of the work, we shall enter into a disquisition on its properties; it may be here generally stated, that in its ordinary and natural state, such as spring and river water, it always contains air, and that it is always so far combined with foreign substances as considerably to interfere with its abstract existence. The water immediately from rain is purer, but even this always contains some of the atmospherical elements, and also some traces of vegetable or animal matter. Even after water has been distilled, some impurities or particles of foreign matter remain in it, and to render it completely free from these impregnations, it requires to be slowly and carefully redistilled. More or less of water is ever contained in the air of the atmosphere, even in the dryest weather, and many bodies, from some ex-

posure to the atmosphere, will abstract a portion of it, or in other words of its moisture; such are the deliquescent salts mentioned under the nead of crystallisation. Whether aqueous fluids exist in the atmosphere chemically combined, or merely mechanically mixed, has been made a question; or rather, it has been debated whether it is chemical solution or mere calorific influence which retains that portion of fluid in the air which is capable of being deposited by an alteration of circumstances; it is most consistent with the general analogy of material existence, perhaps, to suppose the latter to be the case.

354. M. Thenard has shown that an additional quantity of oxygen may be made to unite with water, so as to constitute a very different proportion of hydrogen and oxygen in composition, than the proportion of water. This combination is effected by means of the peroxide of barium, a substance afterwards to be described. See *Quarterly Journal of Science and Art*, vol. viii. p. 114, 115.

355. *Hydrogen with Chlorine, Muriatic Acid*, or, more consistently with the new theory and nomenclature, *Hydro-chloric Acid.*—Mix equal quantities of hydrogen and chlorine, and expose them to the action of a lighted taper, or even to the direct action of the sun's rays, an explosion or detonation will take place; the same effect will be produced by Voltaic electricity, showing, says Mr. Brande, a curious analogy between electric and solar light; for ordinary artificial light does not accelerate the combination (see Brande's account in the Philosophical Transactions of 1820). The produce of the union of equal parts of chlorine, whether effected suddenly and with explosion, or silently, is muriatic, or more properly speaking, hydrochloric acid gas.

356. This acid is procurable by other methods; it may be obtained by pouring sulphuric acid on common salt, the sulphuric acid unites in this case with the base of the salt, and the muriatic acid is evolved in the form of gas.

357. Muriatic acid gas has a pungent smell, it is caustic in its action upon the skin, it extinguishes flame, it is heavier than common air. Its specific gravity is stated by Gay Lussac to be 1·278; 100 cubic inches, according to Mr. Brande, weigh 38·8 grains. It is very rapidly absorbed by water, and, when dissolved in that fluid, it forms the liquid muriatic acid, for the mode of preparing which, and for the theory of its formation, see Hydrochloric Acid.

358. This acid in a liquid state manifests the following properties. It emits suffocating whitish fumes, it affords muriatic gas by being heated with heat. When diluted with water an elevation of temperature is occasioned; it combines freely with the alkalis and with most of the earths, both in their caustic, or rather pure, and their carbonated states. It is specifically heavier than water. When brought into contact with any substance containing oxygen in a state of loose combination, its hydrogen unites with this oxygen, forming water, while the chlorine becomes liberated in the state of gas. Indeed chlorine is procured in this way, but it is usual not to employ the already formed liquid acid for the purpose, but to use the materials that have the power of furnishing the acid gas, as the chloride of sodium (common salt), oxide of manganese, and sulphuric acid.

359. *On the theories which have prevailed respecting Chlorine and Muriatic Acid.*—As these have an important bearing upon the legitimacy of the new electro-chemical doctrines, we shall take the liberty of extracting verbatim, the account of them, found in Dr. Henry's volumes. 'There are few subjects,' says Dr. Henry, 'respecting which the opinions of chemists have undergone such frequent changes as concerning the nature of chlorine and of muriatic acid. The views originally taken by Scheele, the illustrious discoverer of the former substance, was that the muriatic acid is compounded of a certain base, and an imaginary principle called phlogiston (see part 1st.); and that by the action of certain bodies it became dephlogisticated, or deprived of that supposed principle of inflammability. It was afterwards found, however, that all bodies which are capable of producing this change in muriatic acid contain oxygen, and that their portion of oxygen is diminished by the process. It appeared, therefore, to be an obvious conclusion, that what takes place in the action of metallic oxides on muriatic acid, is simply the transference of oxygen from the oxide to muriatic acid; and, conformably with this theory, the resulting gas received the name of oxygenated muriatic, or oxymuriatic acid. Sir H. Davy was led by his early experiments to modify in some degree this view of the theory of the process; and to consider the muriatic acid as a compound of a certain basis with water; and the oxymuriatic acid as a compound of the same basis with oxygen. This modification was rendered necessary by the fact, that when a metallic body is heated in muriatic gas, oxymuriatic acid is obtained, and water appears in a separate state. It was evident, therefore, that muriatic acid gas must either contain water ready formed, or the elements of water, or hydrogen capable of composing water with the oxygen of the oxide. But at a subsequent period, the same distinguished philosopher was induced by the experiments of Gay Lussac and Thenard, as well as by his own researches, to form a different theory on the subject. Oxymuriatic acid he now considers as a simple or undecompounded substance; and muriatic acid as a compound of that simple substance with hydrogen. To convert the muriatic acid into chlorine we have only, according to this view, to abstract hydrogen from the muriatic acid; and this, it is believed, is all that is effected by the action of those oxides which are adapted to the purpose. Again, to convert chlorine into muriatic acid, we have only to combine it with hydrogen; and accordingly, the simple mixture of one measure of each of these gases, when exposed for a short time to the sun's rays, or exploded by an electric spark, affords two measures of muriatic acid gas.

360. The oxymuriatic acid, or chlorine, as Sir H. Davy proposes to call it, in order to avoid all connexion of its name with hypothetical views, is supposed also to unite at once with

the metals, without requiring, like the sulphuric, nitric, and other acids, that the metals should first be in the state of oxides. In proof of this theory it appears to be sufficiently established, that no oxygen can be obtained either alone, or in a state of combination with combustible bodies added for the purpose, from the compounds of chlorine and metals. The analyses, however, of the metallic muriates, as they were formerly considered, remain unimpeached by this change of theory. All that is necessary to transmute in ideas a muriate, into a compound of chlorine, is to deduct the oxygen from the metallic oxide; and adding to it the muriatic acid, to consider the same as chlorine. For example, muriate of soda, deprived of all water, consists,

On the old theory, of muriatic acid			46·7	28
Soda composed of	Oxygen	13·3	53·3	32
	Sodium	40·0		
			100	60

On the old theory, chloride of sodium consists of

Sodium	40	24
Chlorine	60	36
	100	60

On the discarded theory of oxymuriatic acid, that supposed compound was stated to be constituted of three volumes of muriatic acid gas, + 1 volume of oxygen condensed into 2 volumes, and by weight of

Oxygen	22·22	8
Muriatic acid . . .	77·78	28
	100	36

361. According to this view, the atom of dry muriatic acid (hydrogen being unity, and oxygen 8), would be equivalent to 28; and this + 8 (1 atom of oxygen), would give 36 for the atom of oxymuriatic acid. The latter number, indeed, still represents the atom of chlorine as deduced from the fact, that it unites with an equal volume of hydrogen gas, and is 36 times specifically heavier than that inflammable gas. We may consider then, 60 parts of common salt as composed, according to the old view, of 28 parts dry muriatic acid, and 32 parts of soda, (= 24 sodium and 8 oxygen), or of 24 sodium + 36 chlorine, according to the new theory.

362. It is remarkable, that there is hardly any fact connected with the chemical history of chlorine and muriatic acid, that does not admit of being almost as well explained upon the hypothesis that chlorine is compound, as upon that of its being a simple substance. On the whole, however, the weight of evidence is very much in favor of the new, or rather the revived opinion of its elementary nature, especially since the discovery of iodine; and I have little scruple, therefore, in adopting it, as affording the most simple and satisfactory explanation of phenomena, as well as the best ground-work for a conspicuous arrangement of the objects of chemistry. The reader who wishes to examine fully the evidence for both opinions, is referred to the controversy between Dr. Murray and J. Davy, in the 34th volume of Nicholson's Journal; to Sir H. Davy's paper, in the Philosophical Transactions for 1818, p. 169; to the 8th vol. of Transactions of the Royal Society of Edinburgh; the Annals of Philosophy, 12th vol. 379, and xiii. 26, 285; and to a paper by Mr. R. Phillips in the new series of that work, vol. 1st, p. 27, on the action of chlorides on water.' *Henry.*

363 *Hydrogen and Iodine.*—When iodine is presented to nascent hydrogen, a union is produced and a gaseous acid is the result, which is named hydriodic acid. This gas is best prepared in any quantity, by the action of moistened iodine, upon phosphorus It is received over mercury, but, as it is soon decomposed by that metal, it should be transferred as soon as possible into an exhausted vessel.

364. This acid is colorless, and has an extremely sour taste; it smells like muriatic acid. Its specific gravity, as compared with hydrogen, is given as 59·3 to 1; 100 cubic inches weighing 133·6 grains.

365. In a liquid form it is best procured by passing sulphuretted hydrogen through a mixture of iodine and water; sulphur becomes deposited, and, on heating and filtering the liquor, we obtain a pure solution of hydriodic acid.

366. This liquid acid is slowly decomposed by the action of atmospheric air, its hydrogen is attracted by the oxygen of the air, and a portion of iodine is thereby rendered free, which colors the liquor. It is likewise decomposed by concentrated sulphuric, by nitric acid, and by chlorine. Voltaic electricity rapidly decomposes the liquid acid, iodine appearing at the positive, and hydrogen at the negative pole. Although the acid gas so powerfully acts upon mercury, the liquid acid does not affect it. Those bodies called oxides, in which the oxygen is loosely combined, readily decompose the acid, and neutral salts are obtained, called hydriodates; a process of preparing the hydriodate of potass, is given in the new series of the Annals of Philosophy, vol. vii. p. 48. We mention this on account of the salt having lately been employed as an important article in medicine. See MEDICINE.

367. *Hydrogen with Fluorine (Fluoric acid).*—This is introduced here under the presumption that hydrogen is its acidifying principle; 'there appears,' says Dr. Henry, 'every reason to believe, that hydrogen is the acidifying principle of fluoric acid, and that, in the same manner as hydrochloric acid is constituted of chlorine united with hydrogen, this acid also consists of a peculiar base, belonging, like chlorine, to the electro-negative class of bodies, and rendered acid by combination with hydrogen.' To this basis, though not yet exhibited in a separate state, the name of fluorine has been given, and the acid has been termed hydrofluoric.

368. This acid may be procured in a liquid state, by distilling the powdered fluor spar, with twice its weight of strong sulphuric acid. Mr. Knight, in the seventeenth volume of the Philosophical Magazine, has described and represented an ingenious apparatus for the purpose.

369. One peculiarity of the fluoric acid is, that it acts strongly on glass; hence it has been employed for etchings on glass. This peculiarity makes it of course necessary to preserve it in bottles, composed of materials which the acid has not power thus to corrode, those of silver or lead may be used.

370. Fluorine, it will be recollected, is at present rather a supposed than an actually demonstrated base. The fluates are still treated of by some chemists as compounds of fluoric acid with metallic oxides; but Sir H. Davy and M. Ampère, as we have already stated, consider them as compounds of metals, with a peculiar principle analogous to chlorides, which has been called fluorine or phtore. 'Fluor spar, for example, may be either a fluate of lime, or a fluoride of calcium. And in the same manner that we convert, in imagination, a muriate into a chloride, we may change a fluate into a fluoride. Thus fluor spar may be constituted either of

1 atom of fluoric acid	10
1 atom of lime { 20 calcium 8 oxygen }	28
Weight of the atom of anhydrous fluate of lime	38

Or it may consist of

1 atom of fluorine, 10 + 8	18
1 atom of calcium	20
Weight of the atom of fluoride of calcium	38

371. It should be added, that 'if the latter views be correct, fluates, like muriates, can only be capable of existing either in solution, or in a state of hydrous salts. The actual conversion of a fluoride into a fluate will then be attended with the decomposition of an atom of water; and 1 of hydrogen by weight will unite with 18 fluorine, making the real atomic weight of fluoric acid 19, while 8 of oxygen will unite with the atom of metallic base. The atomic weight of the fluate will, in that case, be 19 + that of the alkaline, or earthy base, or 9 (= to an atom of water) more than the number assigned to the anhydrous compound.' *Henry.*

372. NITROGEN, OR AZOTE (see the article AIR, p. 280, No 56).—Nitrogen, or azote, the latter word derived from the Greek a and ζωη, on account of the unfitness of the gas for supporting animal life, was first recognised as a distinct aeriform fluid in 1772. In addition to the modes of procuring it, as stated under AIR, we may give the following: fill a bottle about one-fourth with the solution of nitrous gas, or liquid sulphate of iron, or with liquid sulphuret of lime, and agitate it with the air that fills the rest of the bottle. During the agitation the thumb must be firmly placed over the mouth of the bottle, and when removed the mouth of the bottle must be immersed in a cup-full of the same solution, which will supply the place of the absorbed air. The agitation and admission of fluid must be renewed alternately, so long as any absorption takes place.

373. Various attempts have been made, but hitherto without success, to discover the ingredients of which nitrogen is composed, supposing it to be a compound body. Sir H. Davy ignited, by means of intense electricity, potassium in nitrogen gas, and hydrogen appeared as the result, some nitrogen being at the same time found deficient. Hence it was supposed that the nitrogen had suffered some decomposition, but in further experiments it was ascertained that in proportion to the potassium being free from a coating of potassa, which contains water, in that proportion, was less hydrogen found to appear, and less nitrogen was also observed to be wanting.

374. *Nitrogen and Oxygen.*—Besides the proportion of nitrogen with oxygen that forms atmospheric air, and for an account of which we refer to the article AIR, these bodies are known to unite in four other proportions, and constitute the compounds called,

i. Nitrous oxide of Davy, or the protoxide of nitrogen.

ii. Nitric oxide, or deutoxide of nitrogen.

iii. Nitrous acid.

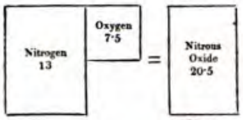
iv. Nitric acid.

375. *Nitrous Oxide.*—The salt called nitrate of ammonia will yield this gas, by being heated in a retort to a temperature of between 420 and 480°. It may be collected over water. The theory of its formation is as follows: nitric acid is made up of oxygen and nitrous gas, as we shall shortly state; the component parts of ammonia are hydrogen and nitrogen. By an increase of temperature, the nitrous gas combines with an additional dose of nitrogen, and thus nitrous oxide is formed; the oxygen of the decomposed nitric acid unites with the hydrogen of the ammonia, and forms water.

376. Nitrous oxide gas has the following characteristics: it is heavier than common air, 100 cubic inches weighing, according to Brande, 46·125 grains; compared with hydrogen, its specific gravity is 20·5 to 1. Its taste is sweet, and its smell not disagreeable. It is easily absorbed by water. It supports combustion, and a taper immersed in it burns brilliantly, sometimes with a crackling noise. Red-hot charcoal burns in it with brilliancy, and consumes some of its oxygen. Many of the metals likewise decompose it at a high temperature. This gas detonates with hydrogen, and 'the best analysis of it is effected in this manner: one volume of nitrous oxide requires one volume of hydrogen. This mixture, fired by the electric spark, produces water, and one volume of nitrogen remains. Now, as one volume of hydrogen takes half a volume of oxygen to form water, nitrous oxide must consist of two volumes of nitrogen and one volume of oxygen; these three volumes being so condensed, in consequence of chemical union, as only to fill the space of two volumes. The specific gravity of nitrogen, compared with oxygen, is as 13 to 15. Nitrous oxide therefore consists of

13	Nitrogen
7·5	Oxygen
20·5	Number for nitrous oxide

Or,



Brande.

For an account of the extraordinary properties of this gas, when taken into the lungs, consult Researches, Chemical and Philosophical, chiefly concerning nitrous oxide, extracts of which will be found in the article AIR, in this Encyclopædia.

377. *Nitric Oxide, Nitrous Gas, or Deutoxide of Nitrogen.*—This was discovered by Hales (see part first), but its properties were first distinctly investigated by Dr. Priestley, under the denomination of nitrous air. Deutoxide of nitrogen is its most appropriate appellation, but it is now very generally known by the name of nitrous gas.

378. This gas may be obtained by pouring nitric acid upon copper filings. The copper is thus made to unite with part of the oxygen of the nitric acid, and from this loss the nitric acid is converted into nitrous gas, which has the following properties.

379. It is heavier than common air, 100 cubic inches weighing, according to Brande, 31·5 grains. When well washed with water it is not acid, and will not be found to redden the color of litmus. It extinguishes flame, and is fatal to animal life. If, however, phosphorus and charcoal be introduced into it in a state of ignition, they continue to burn with vehemence. It does not detonate when mixed with hydrogen. Dr. Henry has shown, in the Philosophical Transactions for 1809, that when mixed with ammonia an electric spark produces a detonation.

380. Nitrous gas is decomposed by almost all bodies that attract oxygen; and some bodies that have a more than common affinity for oxygen, reduce the gas to its ultimate elements.

381. Charcoal, ignited in 100 measures, gives 50 measures of nitrogen gas and 50 of carbonic acid. Arsenic, zinc, or potassium, when heated in it, evolve half its volume of nitrogen. Gay Lussac obtained, as the mean of three experiments, in which 100 volumes of nitrous gas were decomposed, in two by sulphuret of barium, and in one by tin, 49·5 parts of nitrogen. Nitrous gas should consist, therefore, of 1 volume of oxygen + 1 volume of nitrogen, neither of which elements is in a state of condensation. We may therefore consider nitrous gas as constituted of one atom of nitrogen = 14, and two atoms of oxygen = 16, and its representative number will be 30. It composition then is

	Vols.	By weight	
Nitrogen	1	46·60	100
Oxygen	1	53·40	114
	2	100	214

382. No distinct information is obtained respecting the constitution of nitrous gas by the long continued action of electricity. One-half of the azote, according to Mr. Dalton, is liberated and the remainder unites with the evolved oxygen and composes nitrous acid.

383. Nitrous gas, and chlorine, when both perfectly dry have no action whatever on each other, but if water be present, there is an immediate decomposition, its hydrogen combining with the chlorine to form muriatic acid, and its oxygen with the nitrous gas, to form nitrous acid.

384. Nitrous gas is absorbed by the green sulphate and muriate of iron which do not absorb nitrogen gas. To ascertain, therefore, how much nitrogen gas a given quantity of nitrous gas contains, let it be agitated in a graduated tube with one of these solutions. This analysis is necessary previously to deducing, from its effects on atmospheric air, the proportions of oxygen gas; for we must abstract from the residuum the quantity of nitrogen introduced by the nitrous gas (Henry). For an account of the use which is made of nitrous gas in eudiometrical experiments or in ascertaining the purity of the air consult the article EUDIOMETER, in which article the hypo-nitrous acid will be adverted to, the per-nitrous acid of Gay Lussac.

385. *Nitrous acid.*—Is a combination of nitrous gas and oxygen, when the former is presented to the latter they combine and a gaseous compound of a deep yellow color is the result; two measures of nitrous gas with one of oxygen are the proportions for the production of nitrous acid gas; the admixture occasions a condensation down to half, or according to Gay Lussac two-thirds of the volume.

386. Nitrous acid gas supports the combustion of a taper, of phosphorous, and of charcoal; but it extinguishes sulphur. It is freely absorbed by water, and the solution becomes green. Its specific gravity to hydrogen is as 28·6 to 1. 100 cubic inches weigh 64·5 grains.

387. To form the liquid acid it is only necessary to saturate water with the gas. Dr. Thomson states that it may be procured pure by distilling nitrate of lead, but the product of this distillation according to Gay Lussac is hypo-nitrous acid this last chemist states that the nitrous acid is decomposed with so much readiness when it comes into contact with solutions of alkali, that it is incapable of forming a distinct class of salts. He found for instance that with a solution of potassa it afforded hypo-nitrate, and nitrate of potassa, but nothing properly entitled to the appellation of a nitrite. In this the nitrous acid differs most materially from the substance next to be noticed, viz.

388. *Nitric acid.*—Mr. Cavendish in the year 1785 first demonstrated the nature of this acid. It may be produced by passing electric sparks through a mixture of oxygen and nitrogen gases. The following method is given for effecting this combination:—Let a proper tube be filled with, and inverted in mercury. Pass into it a portion of atmospheric air, or an artificial mixture of nitrogen and oxygen gases, in the proportion of one of the former to two of the latter. Let an

iron wire, lengtoened out with one of platinum be introduced within the tube, so that the latter metal only may be in contact with the mixed gases: and let the end of this wire be distant about one-fourth of an inch from the extremity of the upper conducting one. When the apparatus is thus disposed, pass a series of electric sparks or shocks through the gases for several hours. The mixture will be diminished in bulk; will redden litmus paper when enclosed in it; and will exhibit distinctly the smell of nitrous acid. If the experiment be repeated with the addition of a few drops of solution of potassa in contact with the gases we shall obtain a combination of nitric acid with that alkali. The proportions which Mr. Cavendish found necessary for mutual saturation were five parts of oxygen gas and three of common air, or seven parts of oxygen gas to three of nitrogen gas. The acid says Dr. H., from whom we have extracted the above, thus obtained being constituted of 100 measures of nitrogen + 233 oxygen, appears therefore to have been intermediate between nitrous and nitric acid, or more probably consisted of both those acids in a state of mixture. No evolution either of light or heat attends this combination, which is very slowly and gradually effected.

389. Pure nitric acid in a gaseous state is composed according to Davy of 29½ nitrogen and 70½ oxygen. The later experiments of this philosopher have led him to the conclusion that four in volume of nitrous gas, and two of oxygen gas, when condensed in water, absorb, in becoming nitric acid, one in volume of oxygen. Dr. Wollaston from his experiments and from those of Richter and Phillips infers that nitric acid contains by weight 50 of oxygen to 17·54 of nitrogen; in volume the proportions are 1 of nitrogen and 2½ of oxygen.

390. This gas may be decomposed by causing it to pass through a porcelain tube heated to redness, and by this treatment it is resolved into nitrous acid gas, oxygen, and water.

391. For preparing the liquid nitric acid we are directed, in the last edition of the London Pharmacopœia, to mix two pounds of nitrate of potass deprived of its water of crystallisation by heat with two pounds of sulphuric acid; a glass retort is to be used in the mixture and it is to be distilled in a sand-bath until a red vapor rises. The acid in the receiver is to be mixed with another ounce of nitrate of potassa and again to be distilled. This rectification Mr. Philips considers unnecessary.

392. The muriatic and sulphuric acids that generally contaminate the nitric acid of commerce may be separated from it by adding nitrate of baryta to precipitate the latter, and nitrate of silver, for the precipitation of the muriatic acid: This last the nitrate of silver may be put in solution, to the suspected acid, first and continued so long as it produces a white precipitate. When this ceases pour off the clear liquor and add in the same manner the nitrate of barytes; then if the acid be distilled it will pass off perfectly pure.

393. Nitric acid is without color, and emits white fumes when exposed to the air, it is extremely corrosive; its specific gravity is modified by the water it contains. At about 40° it congeals. It absorbs water from the air, increasing its bulk, and lessening its specific gravity. A sudden mixture of it with half its quantity of water occasions the evolution of heat. It retains its oxygen with little force; it is thus in part decomposed by the sun's rays, which separates oxygen from it, and all combustible bodies act the same upon it with more or less readiness, in proportion to their affinity for oxygen. With hydrogen, at as high temperature, detonation is occasioned, essential oils are inflamed by nitric acid when it is suddenly poured upon them.

394. *Nitro Muriatic Acid.*—This is the aqua regia of the alchemists. A mixture of nitric and muriatic acids, acquiring the power of dissolving gold, a power which neither of the acids possesses separately. The mixture of these two bodies occasions the evolution of chlorine; it would appear from the experiments of Sir H. Davy, that a mutual decomposition takes place, the hydrogen of the muriatic acid abstracts oxygen from the nitric, and in consequence the nitric becomes nitrous acid, water is formed, and, as we have said, chlorine evolves. The mode then in which this aqua regia affects gold, is by causing its combination with chlorine.

395. Nitro-muriatic salts cannot be formed, for when this combination acts upon alkalis or earths, the two acids as far as they combine do so separately; and metallic bodies dissolved in aqua regia only yield muriates.

396. *Nitrogen and Chlorine. (Chlorine of Nitrogen.)*—We are recommended by Mr. Brande to form this salt by filling a perfectly clean glass basin with a solution of about one part of salammoniac in twelve of water, and inverting it in a tall jar of chlorine. The saline solution becomes gradually absorbed and rises into the jar, a film forms upon the surface, and it acquires a deep yellow color. At length small globules, looking like yellow oil, collect upon its surface, and successively fall into the basin beneath, whence they are most conveniently removed by drawing them into a small and perfectly clean glass syringe, made of a glass tube drawn to a pointed orifice, and having a copper wire with a little tow wrapped round it for a piston. In this way a globule may be drawn into the tube, and transferred to any other vessel.

397. This is the most powerfully explosive and detonating substance that is known, so much so, that in experiments it is not safe to employ a quantity larger than a grain of mustard seed. It is especially thus combustible with phosphorus and the fixed oils. Dulong, who discovered the compound, was severely wounded in his first experiments with it, and Sir H. Davy had his eye injured by it.

398. The specific gravity of the fluid Sir H. Davy has determined to be 1·653, water being 1. It is not congealed even by a very high degree of cold, it is said not to become solid at 16°. There are some bodies termed combustible with which it seemed to unite without decomposition; nor did metals, resins, or sugar, cause it to explode.

burns with a blue flame; but when mixed with common air it does not explode as do other inflammable gases, but burns silently. A mixture, however, of two measures of it with one of common air, forms a composition which will explode by the introduction of red hot iron, or a lighted taper. "When carbonic oxide, mingled with an equal bulk of hydrogen gas, is passed through an ignited tube, the tube becomes lined with charcoal. In this temperature, the hydrogen attacks oxygen more strongly than it is retained by the charcoal, and water is formed. It was found also by Gay Lussac to be decomposed by the action of potassium, which combines with the oxygen, and precipitates charcoal; and Dobereiner, by bringing it into contact with sulphuretted oxide of platinum, converted it into half its volume of carbonic acid." *Henry.*

404. *Carbon with chlorine.* When carburetted hydrogen, mixed with a great excess of chlorine, is exposed to the action of light, a white crystalline substance is formed, which Mr. Faraday has termed perchloride of carbon. This substance has scarcely any taste; it resembles camphor in its odor; its specific gravity is about 2. It does not conduct electricity. It is not readily combustible, but burns with a brilliant light in oxygen gas. It is not soluble in water, but it freely dissolves in ether and alcohol; and the solutions deposit arborescent and quadrangular crystals. Volatile and fixed oils also dissolve it. It is not acted on by acids nor by alkalis; but at a red heat most of the metals decompose it. Chlorine has no action on it. Iodine abstracts from it part of its chlorine when applied to it at a high temperature. No water exists in it. Hydrogen gas when transmitted along with it through red hot tubes, decomposes it, muriatic acid and charcoal being produced. The composition of the perchloride seems to be about 10 of carbon, and 90 of chlorine, or the atomic composition is stated as

3 atoms of chlorine = 108
2 atoms of carbon = 12

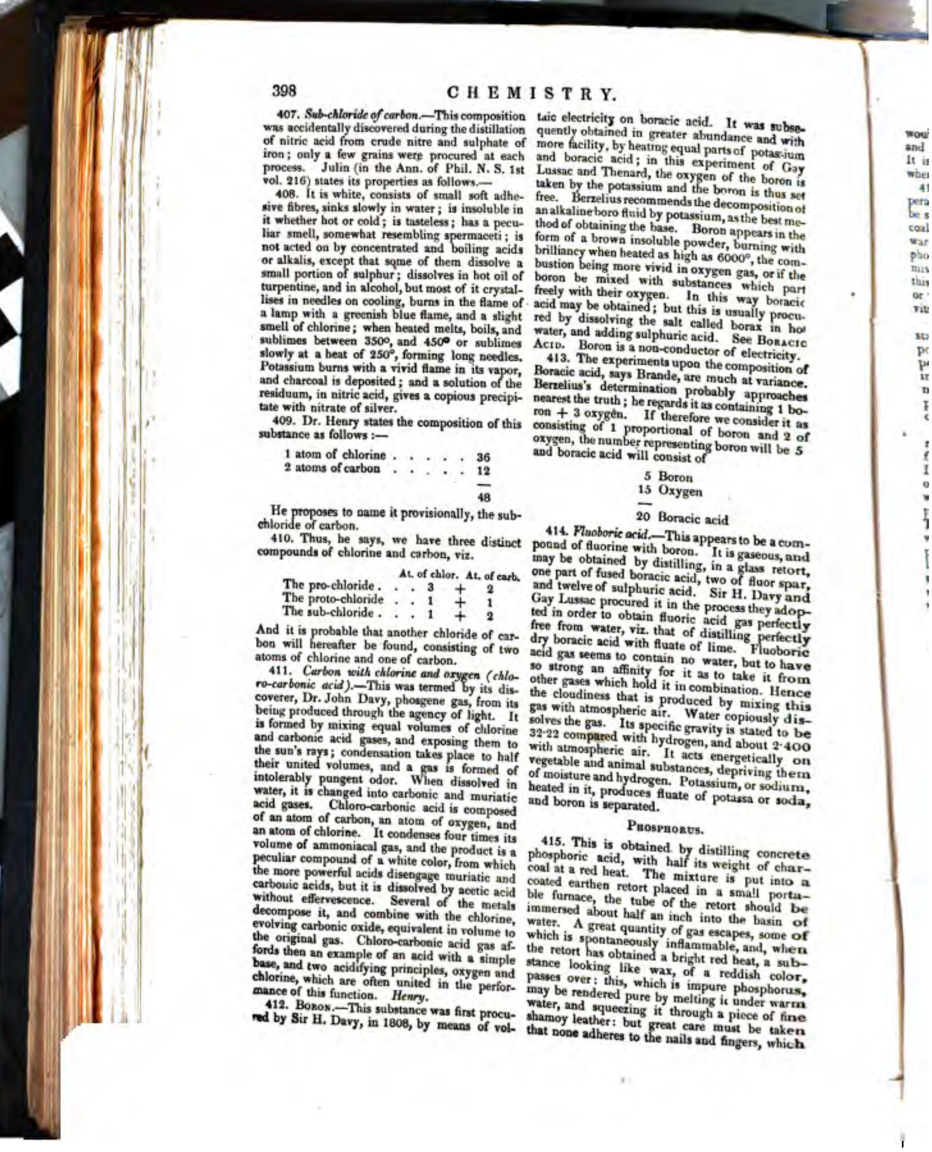
Weight of its atom 120

405. *The proto-chloride of carbon* is a fluid substance, obtained by passing perchloride of carbon through a heated tube containing fragments of rock crystal. This is a limpid colorless fluid, a non-conductor of electricity, not combustible except when held in the flame of a spirit lamp, when it burns with a yellow light and emits much smoke, with fumes of muriatic acid. It does not become solid even at 0°. At about 160, or from that to 170, it rises in vapor.

406. It is insoluble in water, but soluble in alcohol, ether, and the oils. Neither alkalis nor acids produce any effect upon it. It dissolves chlorine, iodine, sulphur, and phosphorus. The metals when treated with it at a high degree of heat absorb its chlorine, and set free the carbon; and oxides, in the measure of oxygen they contain, form with it either carbonic acid or carbonic oxide. Its composition is stated as follows:—

1 atom of chlorine . . 36
1 atom of carbon . 6

42



407. *Sub-chloride of carbon.*—This composition was accidentally discovered during the distillation of nitric acid from crude nitre and sulphate of iron; only a few grains were procured at each process. Julin (in the Ann. of Phil. N. S. 1st vol. 216) states its properties as follows.—

408. It is white, consists of small soft adhesive fibres, sinks slowly in water; is insoluble in it whether hot or cold; is tasteless; has a peculiar smell, somewhat resembling spermaceti; is not acted on by concentrated and boiling acids or alkalis, except that some of them dissolve a small portion of sulphur; dissolves in hot oil of turpentine, and in alcohol, but most of it crystallises in needles on cooling, burns in the flame of a lamp with a greenish blue flame, and a slight smell of chlorine; when heated melts, boils, and sublimes between 350°, and 450° or sublimes slowly at a heat of 250°, forming long needles. Potassium burns with a vivid flame in its vapor, and charcoal is deposited; and a solution of the residuum, in nitric acid, gives a copious precipitate with nitrate of silver.

409. Dr. Henry states the composition of this substance as follows:—

1 atom of chlorine	36
2 atoms of carbon	12
	48

He proposes to name it provisionally, the sub-chloride of carbon.

410. Thus, he says, we have three distinct compounds of chlorine and carbon, viz.

	At. of chlor.		At. of carb.
The pro-chloride . . .	3	+	2
The proto-chloride . .	1	+	1
The sub-chloride . . .	1	+	2

And it is probable that another chloride of carbon will hereafter be found, consisting of two atoms of chlorine and one of carbon.

411. *Carbon with chlorine and oxygen (chloro-carbonic acid).*—This was termed by its discoverer, Dr. John Davy, phosgene gas, from its being produced through the agency of light. It is formed by mixing equal volumes of chlorine and carbonic acid gases, and exposing them to the sun's rays; condensation takes place to half their united volumes, and a gas is formed of intolerably pungent odor. When dissolved in water, it is changed into carbonic and muriatic acid gases. Chloro-carbonic acid is composed of an atom of carbon, an atom of oxygen, and an atom of chlorine. It condenses four times its volume of ammoniacal gas, and the product is a peculiar compound of a white color, from which the more powerful acids disengage muriatic and carbonic acids, but it is dissolved by acetic acid without effervescence. Several of the metals decompose it, and combine with the chlorine, evolving carbonic oxide, equivalent in volume to the original gas. Chloro-carbonic acid gas affords then an example of an acid with a simple base, and two acidifying principles, oxygen and chlorine, which are often united in the performance of this function. *Henry.*

412. Boron.—This substance was first procured by Sir H. Davy, in 1808, by means of voltaic electricity on boracic acid. It was subsequently obtained in greater abundance and with more facility, by heating equal parts of potassium and boracic acid; in this experiment of Gay Lussac and Thenard, the oxygen of the boron is taken by the potassium and the boron is thus set free. Berzelius recommends the decomposition of an alkaline boro fluid by potassium, as the best method of obtaining the base. Boron appears in the form of a brown insoluble powder, burning with brilliancy when heated as high as 6000°, the combustion being more vivid in oxygen gas, or if the boron be mixed with substances which part freely with their oxygen. In this way boracic acid may be obtained; but this is usually procured by dissolving the salt called borax in hot water, and adding sulphuric acid. See Boracic Acid. Boron is a non-conductor of electricity.

413. The experiments upon the composition of Boracic acid, says Brande, are much at variance. Berzelius's determination probably approaches nearest the truth; he regards it as containing 1 boron + 3 oxygên. If therefore we consider it as consisting of 1 proportional of boron and 2 of oxygen, the number representing boron will be 5 and boracic acid will consist of

5	Boron
15	Oxygen
20	Boracic acid

414. *Fluoboric acid.*—This appears to be a compound of fluorine with boron. It is gaseous, and may be obtained by distilling, in a glass retort, one part of fused boracic acid, two of fluor spar, and twelve of sulphuric acid. Sir H. Davy and Gay Lussac procured it in the process they adopted in order to obtain fluoric acid gas perfectly free from water, viz. that of distilling perfectly dry boracic acid with fluate of lime. Fluoboric acid gas seems to contain no water, but to have so strong an affinity for it as to take it from other gases which hold it in combination. Hence the cloudiness that is produced by mixing this gas with atmospheric air. Water copiously dissolves the gas. Its specific gravity is stated to be 32·22 compared with hydrogen, and about 2·400 with atmospheric air. It acts energetically on vegetable and animal substances, depriving them of moisture and hydrogen. Potassium, or sodium, heated in it, produces fluate of potassa or soda, and boron is separated.

Phosphorus.

415. This is obtained by distilling concrete phosphoric acid, with half its weight of charcoal at a red heat. The mixture is put into a coated earthen retort placed in a small portable furnace, the tube of the retort should be immersed about half an inch into the basin of water. A great quantity of gas escapes, some of which is spontaneously inflammable, and, when the retort has obtained a bright red heat, a substance looking like wax, of a reddish color, passes over: this, which is impure phosphorus, may be rendered pure by melting it under warm water, and squeezing it through a piece of fine shamoy leather: but great care must be taken that none adheres to the nails and fingers, which

would inflame on taking them out of the water, and produce a painful and troublesome burn. It is usually formed into sticks, by pouring it, when fluid, into a funnel tube under water.

416. In performing this distillation a high temperature is required, so that the furnace should be sufficiently capacious to hold a body of charcoal piled up above the retort, which, as earthenware becomes permeable to the vapor of phosphorus at a red heat, must be coated with a mixture of slaked lime and solution of borax; this mixture may be laid on with a brush in two or three successive coats, and forms an excellent vitrifiable lute. *Brande.*

417. Phosphorus is an highly inflammable substance: its specific gravity 1·770. When exposed to the air it exhales luminous fumes of a peculiar odor. It may be ignited by friction; in oxygen gas it burns very brilliantly, as also in nitrous oxide, nitrous and chlorine gases. Phosphoric acid is the product of a rapid combustion of phosphorus in oxygen.

418. The only information which we possess respecting the nature of phosphorus, is derived from the electro-chemical researches of Sir H. Davy. When acted on by a battery of 500 pairs of plates in the same manner as sulphur, gas was produced in considerable quantities, and the phosphorus became of a deep red brown color. The gas proved to be phosphureted hydrogen, and was equal in bulk to about four times the phosphorus employed. Hence hydrogen may probably be one of its components, but no confirmation of the truth of this view is derived from the recent experiments of the same philosopher, which, indeed, are rather contradictory to it. *Henry.*

419. Phosphorus is capable of being oxygenated in various ways. Oxide of phosphorus is formed on the surface of the material when it is kept for some time under water. This substance is inflammable, but not so volatile or fusible as is phosphorus itself. It is this which is generally employed in the phosphoric match boxes. But besides this oxide there are three acid combinations of phosphorus and oxygen, which have been named phosphorus, hypophosphorus, and phosphoric acids.

420. *Phosphorus acid.*—This is best obtained by subliming phosphorus through corrosive sublimate (a perchloride of murcury); then mixing the product with water, and heating it till it becomes of the consistence of a syrup. The resulting liquid is a compound of phosphorus acid and water, and it has therefore been named hydro-phosphorus acid.

421. The water is decomposed in the operation, its hydrogen, combining with the chlorine, forms muriatic acid; and its oxygen, uniting with phosphorus, forms phosphorus acid. Heat expels the muriatic acid from the mixture.

According to Davy, 100 grains of phosphorus acid consists of

Phosphorus	59·7
Oxygen	40·3
	100

422. *Hypophosphorus acid.*—This is produced by pouring sulphuric acid upon the soluble salt of baryta, resulting from the action of phosphuret of baryta on water. The acid is to be added in just sufficient quantities to separate the baryta, and the solution which remains is the hypophosphorus acid, which, when evaporated to a certain extent, yields a sour viscid liquid, eagerly attractive of oxygen, and unsusceptible of crystallisation. It is doubtful whether this substance may not be a hydracid, or a triple compound of oxygen, phosphorus, and hydrogen; in this case, as Dr. Henry remarks, its proper appellation would be hydro-phosphorus acid.

423. *Phosphoric acid.*—This may be produced, of course, by the combustion of phosphorus in oxygen, or in atmospheric air, under a dry bell glass; but the following is given as the most economical method.

424. On 20 pounds of bone, calcined to whiteness and finely powdered, pour 20 quarts of boiling water, and add 16½ pounds of sulphuric acid, diluted with an equal weight of water (in general much less of sulphuric acid is employed). Let these materials be well stirred together, and be kept in mixture about 24 hours. Let the whole mass be next put into a conical bag, of sufficiently porous and strong linen, in order to separate the clear liquor, and let it be washed with water, till the water ceases to have much acidity to the taste. Evaporate the strained liquor in earthen vessels, placed in a sand heat, and when reduced to about half its bulk, let it cool. A white sediment will form in considerable quantity, which must be allowed to subside; the clear solution must be decanted and boiled to dryness in a glass vessel. A white mass will remain, which is the dry phosphoric acid. This may be fused in a crucible, and poured out on a clean copper dish. A transparent glass is obtained, which is the phosphoric acid in a glacial state; not, however, perfectly pure, but containing sulphate and phosphate of lime. According to Fourcroy and Vauquelin, it is, in fact, a super-phosphate of lime, containing, in 100 parts, only 30 of uncombined phosphoric acid, and 70 of neutral phosphate of lime; but, when prepared with the full proportion of sulphuric acid, Mr. Dalton finds only from 8 to 12 per cent. of the calcareous phosphates. To separate the latter, Dr. Higgins neutralised the acid liquor, obtained by the action of sulphuric acid on bones, with carbonate of ammonia, 'the neutral liquor was decanted and evaporated, till a portion of it deposited crystals on cooling; and was then poured, while hot, into a thin glass balloon, which was placed on a sand-bed of a reverberatory furnace. The mouth of the balloon being covered with an inverted crucible, the fire was gradually raised till the sand pot was obscurely red. In this way the sulphate of ammonia, and ammonia that neutralised the phosphoric acid, were both expelled, and the phosphoric acid remained in the form of a transparent colorless glass, still retaining a minute quantity of ammonia. The glacial acid may also be prepared from perfectly pure phosphoric acid, which has been made by acting on phosphorus with nitric acid. It is remarkable, that, according to the experiments

of Berthier, it contains at least one-fourth its weight of water, a proportion which could scarcely have been expected in so hard a substance.' *Henry.*

425. Phosphate of ammonia, exposed to a red heat in a platinum crucible, affords also a phosphoric acid, which is very pure.

426. Phosphoric acid is deliquescent and soluble. It is not susceptible of decomposition by the action of heat merely. When distilled in an earthern retort, with about half its weight of charcoal powdered, the glacial acid is decomposed; its oxygen, uniting with the carbon, forms carbonic acid, and part of the phosphorus rises in a separate state; another, and the larger part, escapes in combination with hydrogen. In this way phosphorus is best obtained.

427. *Phosphorus and chlorine.*—These elements combine in two proportions, constituting two definite compounds, viz. the perchloride, or bichloride, and the chloride, or proto-chloride.

428. When phosphorus is treated with chlorine, it burns with a pale flame, and produces a white volatile compound, which condenses on the sides of the vessel. This is the perchloride of phosphorus, a substance which was for some time confounded with phosphoric acid; but its volatility is sufficient to mark the difference. It rises in vapor at a temperature considerably below 212°. It acts violently on water, a mutual decomposition being effected, muriatic and phosphoric acids being the result. When transmitted through a red hot porcelain tube, with oxygen, phosphoric acid is formed and chlorine evolved; this fact is in proof, that the affinity of oxygen for phosphorus, is stronger than chlorine.

429. *The chloride, or proto-chloride* of phosphorus.—Sir H. Davy recommends the preparation of this compound, by passing the vapor of phosphorus over corrosive sublimate, which is a perchloride of mercury. By this process calomel, or proto-chloride of mercury is formed, and the phosphorus unites with one proportional of chlorine.

430. Chloride of phosphorus is a liquid of the specific gravity 1·45. It soon, upon standing, deposits a portion of phosphorus, and becomes limpid and without color. It is converted into the perchloride by chlorine. Ammonia separates phosphorus, and produces a triple compound.

431. It acts upon water with much energy, and produces muriatic and phosphorus acids; while the perchloride produces muriatic and phosphoric acids, 'for as, in the perchloride, there are two proportionals of chlorine, so in acting upon water, two of oxygen must be evolved, which, uniting to one of phosphorus, generate phosphoric acid. The chloride of phosphorus, on the contrary, containing only one proportional of chlorine, produces muriatic acid, and phosphoric acid, when it decomposes water. But the phosphorus acid thus produced, always contains water, which it throws off when heated in ammonia, forming, with that alkali, a dry phosphate. This experiment shows that the hydro-phosphorus acid consists of two proportionals of phosphorus acid, = 37 + 1 water = 8·5.'

432. *Phosphorus with Iodine.*—Iodide of phosphorus is formed by the simple combination of iodine with phosphorus; the compound is of a reddish brown color, and if the components be quite dry when they are made to come into contact, their combination produces no evolution of gas; but if they be moistened, then hydriodic acid is formed from the union of iodine with the hydrogen of the water, a little subphosphureted hydrogen is also produced, and phosphorus remains in solution.

SULPHUR.

433. Sulphur, or brimstone, is met with either as a compact solid body, usually in the shape of long rolls, or in the form of a light powder, called flower of sulphur. It is principally a mineral product. The sulphur of commerce is generally purer than that which is met with in this country, which is usually combined with a portion of the metal from which it has been separated.

434. Sulphur volatilises at about the temperature of 180°, if the heat be carried up to 225° it liquifies; by a rapid increase of temperature up to from 350 to 400°, it becomes viscid, and of a deep brown color. It sublimes at 600°, and after fusion it forms a crystalline fibrous mass.

435. If sulphur be converted into vapor in close vessels, it is again collected in a solid form; what remains has been named sulphur vivum.

436. For pharmaceutical purposes it is occasionally precipitated from its alkaline combinations by an acid, and is then the milk of sulphur, or precipitated sulphur of the pharmacopœia. This precipitated sulphur is considered by Dr. Thomson as a compound of sulphur and water.

437. We may judge of the purity of sulphur by heating it gradually upon a piece of platinum leaf; when, if free from impurities, it will totally evaporate. Boiling oil of turpentine will also dissolve sulphur completely, if it be pure.

438. That sulphur contains hydrogen was proved by the experiments of Sir H. Davy, who produced sulphureted hydrogen from it by powerful voltaic influence; and the action of potassium upon it demonstrates the same thing, these two bodies enter energetically into combination, and sulphureted hydrogen is evolved with intense heat and light.

439. But whether hydrogen be an incidental or inherent ingredient of sulphur is considered as still doubtful, both by Davy and Berzelius; the latter chemist found, upon heating oxide of lead with sulphur, that the quantity of water produced was not sufficient to indicate any definite proportion of hydrogen in sulphur.

440. *Sulphur and Oxygen.*—Two well-defined compounds are formed by the combination of sulphur with oxygen, viz. sulphurous and sulphuric acid. The first may be obtained by several processes: 1. By burning sulphur in oxygen gas. 2. By heating mercurial oxide with sulphur. 3. By boiling mercury in sulphuric acid; and, 4. By burning sulphur, at a low temperature, in common air, under a glass bell.

441. Sulphurous acid has a suffocating smell, resembling that which attends the burning of sulphur itself. It is more than twice as heavy as atmospheric air. In a gaseous state it extinguishes burning bodies; and it is fatal to animal life when exclusively respired.

442. Water absorbs about thirty-three times its bulk, or one-eleventh its weight, and caloric is evolved by the union. The watery solution does not, as acids in general do, redden an infusion of litmus, but it entirely destroys its color. Hence its use in bleaching several substances; it is employed sometimes to check fermentation in wines.

443. Sulphurous acid may be converted to the state of sulphuric, by imparting oxygen to it. If water, impregnated with sulphurous acid, be exposed to oxygen gas, the oxygen gradually becomes absorbed, and thus is sulphuric acid formed. By the addition of a little oxide of manganese to water saturated with sulphurous acid gas, sulphuric acid will be produced. This gas is likewise formed into sulphuric acid by admixture with chlorine, if the gases are in contact with water; the hydrogen of the water in this case combines with the chlorine, and the oxygen with the sulphurous acid. The contact of water is also necessary to the formation of the sulphuric acid, when the decompositions are effected by means of nitrous acid gas.

444. Sulphurous acid gas is decomposed by the application of heat, in contact with some combustible substances. A mixture of sulphurous acid and hydrogen gases, passed through a red-hot porcelain tube, will be attended by the following decomposition and result; the oxygen of the acid will combine with the hydrogen, and form water, while sulphur will be deposited in a separate form.

Sulphurous acid, we are told, consists of

1 atom of sulphur	16
2 atoms of oxygen	16
	32

the relative weight of the atom of sulphur being double that of oxygen.

In volumes, it is constituted of

$$\left.\begin{array}{l}\text{1 vol. of vapor of sulphur}\\ \text{1 vol. of oxygen . . }\end{array}\right\}\text{ condensed into 1 vol.}$$

445. Sulphuric acid was formerly obtained from sulphate of iron (green vitriol) by distillation. It is now generally formed by burning a mixture of about eight parts of sulphur with one of nitre, in close leaden chambers, containing water. See Parkes' Chemical Essays, vol. ii. See also the first part of the present essay.

446. Sulphuric acid is a limpid and colorless fluid; it is oily in its consistence, hence the vulgar name of oil of vitriol. A very considerable heat is evolved when sulphuric acid and water are suddenly mixed. It is acrid and caustic; it is nearly twice as heavy as water. It may be frozen by a sufficient reduction of temperature; and when, at the specific gravity of 1·780, it requires for its congelation even a less degree of cold than is sufficient to freeze water. All combustible matters decompose sulphuric acid, it is therefore necessary in preserving it, to exclude such matters of every kind, and to keep it in bottles with well-fitting glass stoppers.

447. The atomic weights of sulphur and sulphuric acid are stated as follows:

Weight of the atom of sulphur	16
Real sulphuric acid = 1 atom sulphur + 3 oxygen	40
Liquid sulphuric acid = 1 real acid + 1 water	49

448. Sulphuric acid is largely consumed in a variety of manufactures. It is used by the makers of nitric, muriatic, citric, and tartaric acids; by bleachers, dyers, tin-plate makers, brass-founders, and gilders. For these purposes it is generally sufficiently pure as it comes from the wholesale manufacturer; but as traces of lead, lime, and potassa are usually found in it, it often requires to be purified by distillation, for the use of the experimental chemist.

449. The distillation of this acid in glass retorts, requires some precaution, in consequence of the violent jerks which the production of its vapor occasions, and which often break the vessel; this may be prevented by putting some strips of platinum into the acid; it then boils quietly, and it is only necessary to take care that the neck of the retort and receiver are not broken, in consequence of the high temperature of the condensing acid. This very useful contrivance, says Mr. Brande, was first shown me by Mr. James Smith.

450. If the acid of commerce contain dissolved sulphate of lead, it becomes turbid, on dilution, so that its remaining clear when mixed with water, is some proof of its purity, as far, at least, as lead is concerned.

451. When sulphuric acid was procured by the distillation of green vitriol it was frequently observed that a portion concreted into a white mass of radiated crystals. The same substance has also been remarked as occasionally formed in the acid of the English manufacturers. It has been called glacial or fuming sulphuric acid, and is by Dr. Thomson considered as the pure or anhydrous acid; that is sulphuric acid free from water, it appears however probable that it consists of sulphuric acid combined with a portion of sulphurous acid.

452. It has long been an object with the manufacturer to obtain sulphuric acid without the aid of nitre, and a patent has been obtained for a process of this kind, invented by Mr. Hill. It consists in submitting coarsely powdered iron pyrites (sulphuret of iron) to a red heat, in cylinders communicating with a leaden chamber containing water. The sulphur, as it burns out of the pyrites, appears at once to pass into the state of sulphuric acid. *Brande.*

453. The theory of the formation of sulphuric acid, when it is procured from sulphur, is generally that of sulphur acquiring a certain quantity of oxygen, either from the atmosphere or from the bodies with which the sulphur is made to come in contact; when the acid is formed by burning nitre and sulphur together, sulphurous acid is generated, while the nitre occasions the production of nitric oxide, which produces nitrous acid gas. 'When these gases, i. e. sulphurous and nitrous acids, are perfectly dry they do not act

upon each other, but moisture being present in small quantities they form a white solid, which is instantly decomposed when put into water. The nitrous acid reverts to the state of nitrous oxide, having transferred one additional proportional of oxygen to the sulphurous acid, and with water producing the sulphuric acid; while the nitric oxide by the action of the air again affords nitrous acid, which plays the same part as before.'

454. Sulphuric acid is susceptible of decomposition, by being treated with combustible substances at high temperatures. Indeed heat alone will decompose it. If the vapor of the acid be passed through a red hot tube of glass or porcelain it is resolved into sulphurous acid gas and oxygen gas. Platinum wires, communicating with the extremities of a galvanic pile, will also decompose the acid, and it will be found that, at the end of the negative wire, floculi of sulphur make their appearance, while at the positive end oxygen gas is evolved. In this experiment some sulphate of platinum is said to be formed, produced by the action of the acid upon the platinum, and indicated by the presence of a brownish tinge.

455. *The hypo-sulphurous acid* does not exist, as do the two acids just mentioned, separable from a base; nor does hypo-sulphuric acid.

456. *Sulphur with chlorine.*—Chloride of sulphur was first described by Dr. Thomson, in Nicholson's Journal. Upon sulphur being heated with chlorine more than twice its weight of the gas is absorbed, the product is a greenish yellow fluid, which exhales suffocating fumes when exposed to the air; its specific gravity is 1·6. It is volatile below 200° of Fahrenheit. It does not affect vegetable blues when they are in a dry state, but upon water being added, it instantly reddens them, sulphur becomes deposited, and sulphurous, sulphuric, and muriatic acids are formed from the decomposition of the water, its hydrogen uniting with the chlorine, and its oxygen combining with a portion of the sulphur to form the sulphuric and sulphurous acids, while another portion of sulphur is, as above stated, thrown down.

457. *Sulphur and iodine* readily combine at a gentle heat and form a black compound, not unlike the sulphuret of antimony. This was first described by Gay Lussac in the An. de Chim. 91. Its precise composition does not seem to be known.

SELENIUM.

458. Berzelius detected this substance in the sulphur of Fahlun in Sweden, and he at first supposed it to be tellurium. The process of extracting it is described in the 13th volume of the Annals of Philosophy. This material has since been discovered in the volcanic rocks of Lipari; and more recently several minerals from the east have been found to contain it by the analysis of Mr. Henry Rose (See An. de Chim. et de Phys. xxix. 113.) A seleniuret of lead has also been analysed from the Lawrence Mine at Clausthal, which bore a considerable resemblance to galena, and from which selenium was sublimed by heating the material in a glass tube.

459. The color of selenium
varies considerably; it has a brig
tre, and by most chemists is arran
metals. When heated before a b
hales fumes, with a smell like that
which is so powerful that it is s
not exceeding 1-50th of a grain
impregnate the air of a large apar

460. Selenium combines with t
air when heated. The selenic o
sparingly soluble in water. It
with liquid alkalis. It seems t
same class of oxides as the carbo

461. *Selenic Acid.*—If seleniu
dryness in combination with nitri
and crystallisable compound is f
the selenic acid. This may likev
by dissolving selenium in nitri
riatic acid, and evaporating th
retort. This acid unites with m
proportions, forming a class of
niates, biselianates, &c. See *A*
et Physique, tom. vii. *Tho*
ii. and xii.

462. Selenium absorbs chl
which it forms a brown liquid,
dition of more chlorine is chan
solid mass. Berzelius states t
pound of muriatic and selenic
probably composed, says Dr. H
of selenium and the latter acid.

After treating of the acidifi
metallic), and their combinati
chlorine, iodine, and fluorine, t
arrangement we hitherto adopt,
sider their combination with ea

NITROGEN AND HYDROGEN.

463. Ammonia in a gaseous
tained by mixing equal parts of
monia and dry quicklime, or t
and one of the latter; they are
into a small glass retort, a gen
and the gas that is evolved col
cury.

464. This gas has a strong
has a specific gravity to hydrog
cubical inches weighing a lit
grains. It extinguishes flame, an
life; it converts most vegetab
and yellows to red; thereby
alkaline properties, and it has
gar appellation of volatile alk
absorbed by water, and when
turated with the gas, liquid amm
which may be formed in the
by Mr. R. Phillips. *Remar*
Pharmacopœia, for an account
AMMONIA and PHARMACY.

465. Ammoniacal gas may
applying an electric spark to
monia and oxygen gas, which
same way that the electric sp
of hydrogen and oxygen gase
observed this, and published
in the Philosophical Transact

466. To obtain accurate re
to 'use less oxygen at first
saturate the whole hydrogen

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-Chlorate
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it is readily
ine escapes;
o formed.
is formed of

equal volumes of ammoniacal and hydroidic acid gases. It crystallises in cubes.

475. *Hydrochlorate of Ammonia, Muriate of Ammonia*, or *Sal-ammoniac*.—Mix equal volumes of ammoniacal and muriatic acid gases, and they will become entirely condensed into a white solid, which solid is sal-ammoniac, as it is commonly called. For the commercial and other modes of obtaining it, consult the article AMMONIAC, SAL.

476. 'Muriate of ammonia exhibits the following properties.

It is volatilised without being liquified or decomposed, or, in other words, may be sublimed. Sir H. Davy finds that it may even be passed without alteration through glass or porcelain tubes, heated to redness. When, however, it is transmitted over ignited metals, it is decomposed into its gaseous elements. It is readily soluble in water, three parts and a half of which, at 60°, take up one of the salt. During its solution much caloric is absorbed. In boiling water it is still more soluble; and the solution in cooling shoots into regular crystals.—It slightly attracts moisture from the air.—On the addition of a solution of pure potassa, or pure soda, the alkali is disengaged, as is evinced by the pungent smell that arises on the mixture of these two bodies, though perfectly inodorous when separate.—Though generally considered as a neutral salt, yet if placed on litmus paper, and moistened, Berzelius observes, that the paper is reddened after some moments, as it would be by an acid. It is decomposed by strontia, lime, and magnesia.' *Henry*.

477. 'Native muriate of ammonia, occurs massive and crystallised in the vicinity of volcanoes, and in the cracks and pores of lava, near their craters. It has thus been found at Ætna, and at Vesuvius, in the Solfa-terra, near Naples, and in some of the Tuscan Lakes. An efflorescence of native sal-ammoniac, is sometimes seen upon pit coal. Its color varies from the admixture of foreign matter, and it is frequently yellow from the presence of sulphur. It is said that considerable quantities of native sal-ammoniac are also found in the country of Bucharia, where it occurs with sulphur in rocks of indurated clay. The ancients according to Pliny, called this salt ammoniac, because it was found near the temple of Jupiter Ammon in Africa.' *Brande*.

478. *Ammonia and nitric acid. Nitrate of ammonia*.—This salt, from its exploding at a high temperature, was formerly called nitrum flammans. The most simple and direct mode of procuring it, is by saturating dilute nitric acid with carbonate of ammonia. The salt takes on a different form, according to the manner in which its solution may have been evaporated. If the liquor be evaporated by a heat under 100° its crystals are six-sided prisms, terminated by long six-sided pyramids. If the heat applied be at 212°, the crystals on cooling become thin and fibrous. It is deliquescent in all its forms when exposed to the atmosphere, but it is less soluble when it has been formed in the regular mode of crystallisation, than when boiled down into a shapeless mass.

479. The most important property of nitrate

of ammonia, is that it yields, as already stated, the nitrous oxide.

480. The mode of its preparation influences its composition as well as its solubility: the variations of the compound are stated by Sir H. Davy to be as follows:

Prismatic.	Fibrous.	Compact.	
69·5	72·5	74·5	Acid.
18·4	19·3	19·8	Ammonia.
12·1	8·2	5·7	Water.
100·	100·	100·	

481. *Ammonia with carbonic acid.*—The ammoniacal and carbonic acid gases readily combine to form carbonate of ammonia. One volume of the latter and two of the former, being mixed in a glass vessel over mercury, undergo a complete condensation, and carbonate of ammonia is the result. This is one of the most useful of the ammoniacal compounds.

482. A bi-carbonate is engendered if water be present, for this so far overcomes the elasticity of the gas as to enable the salt formed to take up another volume of carbonic acid.

483. Carbonate of ammonia is generally met with in cakes which are broken away from the vessel in which the salt sublimes, when it is made by treating muriate of ammonia with carbonate of lime. This salt ought indeed to be called hydrated carbonate of ammonia, since the result of the combination is carbonate of ammonia, water, and chloride of calcium, the two first being in union; and, even supposing the materials of the compounds to be dry, water comes to be formed by the union of the hydrogen abstracted from the muriatic acid, with the oxygen taken from the lime.

484. Under the name of the sub-carbonate of ammonia, another compound is met with in the shops, produced by mixing one part of muriate of ammonia with one and a half of dry carbonate of lime, and exposing them to heat in a proper apparatus.

485. This Mr. Phillips says, ought to be named the sesqui-carbonate of ammonia, and it should thus appear that ammonia and carbonic acid combine together in three known proportions, viz. the carbonate composed of one proportional acid + 1 base, the sesqui-carbonate composed of 1·5 acid + 1 base, and the bi-carbonate of 2 acid + 1 base. The odor of the sesqui-carbonate is pungent, its taste is penetrating and saline; it renders blues green, and reddens turmeric. A pint of water at 60° dissolves rather less than four ounces. This solution is the liquor ammoniæ sub-carbonatis of the London Pharmacopœia.

486. *Borate of ammonia* is formed by saturating boracic acid with ammonia; it is formed in crystals. Phosphate of ammonia is very soluble, but does not easily crystallise. *Hypophosphite of ammonia.* Composition unknown. *Phosphate of ammonia* is a common ingredient in urine, especially of the carnivorous animals. It may be formed by saturating the superphosphate of lime, which results from the action of sulphuric acid on bones, with carbonate of ammonia; or by at once saturating phosphoric acid with ammonia. It crystallises in four-sided pyramids with square bases, which are soluble in twice their weight of water at 6°. *Hyposulphite of ammonia* is strictly, according to Mr. Herschell, a bi-salt. It may be formed by passing sulphurous acid through the aqueous solution of the sulphuret. This salt does not freely crystallise. Its taste is exceedingly bitter and pungent. *Sulphate of ammonia* may be formed by passing ammonia into sulphuric acid; but it is usually prepared by dilute sulphuric acid, with the sub-carbonate; or by decomposing muriate of ammonia by sulphuric acid. This salt crystallises in six-sided prisms, which have a bitter and pungent taste; are slightly deliquescent, and are soluble in an equal weight of boiling water. Seleniates of ammonia exist in three different proportions, forming seleniates, biseleniates, and quadriseleniates.

HYDROGEN WITH CARBON.

487. Carbon and hydrogen combine so as to form carbureted hydrogen gas; this union is effected in several natural processes, especially those of putrefaction; it cannot, however, be effected by heating charcoal at once in hydrogen gas, since the cohesive attraction existing between the particles of the charcoal prevents the free chemical combination between the two substances.

488. Another combination of these substances is generally known by the name of olefiant gas, which was first noticed by the chemists of Holland, and termed by them olefiant, and to a third combination Mr. Dalton has given the provisional name of super-olefiant; this last, however, has never been exhibited in a separate form.

489. We extract from Dr. Henry's Chemistry the following table, giving a general view of these gases.

	Specific Gravity.	Proportions by weight.	Proportions in Volume.	
1. Carbt. Hydrogen	0.555	6 carb. 2 hydr.	1 carb. 2 hydr.	Condensed into one volume.
2. Olefiant . . .	0·972	12 carb. 2 hydr.	2 carb. 2 hydr.	
3. Super Olefiant	1·458	18 carb. 3 hydr.	3 carb. 3 hydr.	

490. It has been supposed, from the variety of specific gravity and composition of gases obtained by the combination of carbon and hydrogen, that they are capable of combination indefinitely, that is in every proportion; but this is conceived to be an erroneous supposition by other chemists, and it is thought that appearances favoring that inference, are attributable to the peculiarity, that the combinations differ from each other, not so much in the relative proportions of their elements, as in the number of atoms or volumes condensed into a given volume.

491. *Carbureted hydrogen gas.*—To this gas

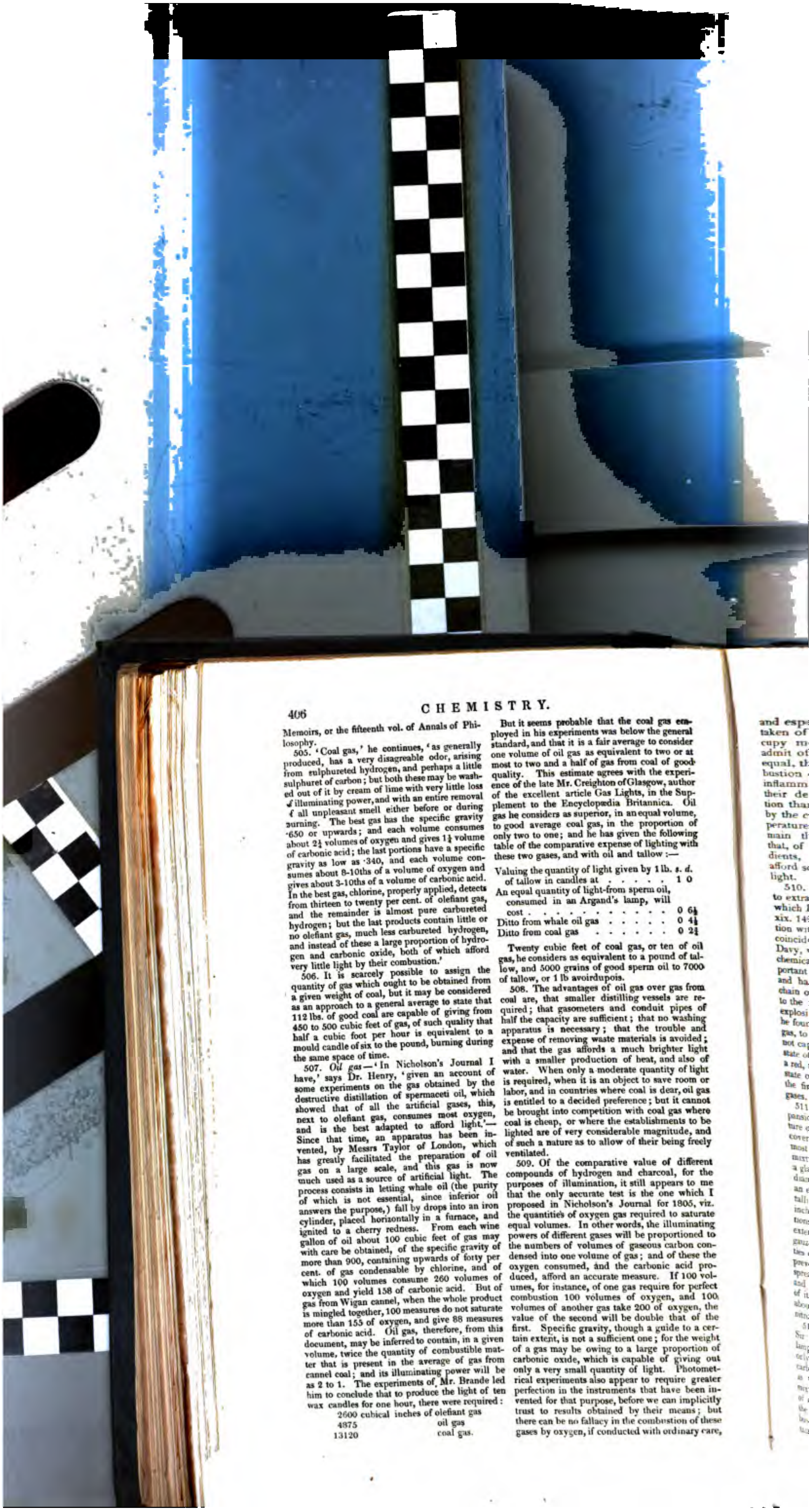
it has not yet been exhibited in a separate form.

501. *Of the mixed combustible gases from moist charcoal, alcohol, ether, coal, oil-tallow, and wax. And on the fire damp of coal mines; and the construction and principle of the safety lamp of Sir H. Davy.*—As the consideration of the several particulars mentioned above, involves a good deal of very interesting matter, not only in a philosophic, but in a practical point of view, and, as we have found nothing in our researches respecting them more satisfactorily concise than the disquisition of Dr. Henry, we shall take the liberty of extracting from his Elements the whole section which relates to these topics.

502. The three gases, says Dr. Henry, which have been just described under the names of carburetted hydrogen, olefiant, and super-olefiant gases, appear to me to be the only compounds of these elements that have as yet been proved to be distinct and well characterized species. It is of mixtures of two or more of these three gases, with occasionally a proportion of carbonic oxide, and a few other gases, that the almost infinite variety of aeriform products are constituted, which are obtainable by the exposure of moistened charcoal, of alcohol, or ether, of oil, tallow, wax, or coal, to a heat a little above ignition. This view of the subject at least appears to me to be much more probable than that they are so many distinct compounds of carbon and hydrogen, which, on this theory, would be capable of uniting in all possible proportions with each other.

503. Of these aeriform compounds, the gases from coal and from oil are of most importance, from their widely extensive use in artificial illumination.

504. *Coal gas.*—By submitting coal to distillation in an iron retort, besides a portion of tar, and solution of carbonate of ammonia, which condense in a liquid form, a large quantity of permanent gas is evolved. This gas I have shown (Philosophical Transactions, 1808 and 1820) is extremely variable in composition and properties, not only when prepared from different coals, but from the same kind of coal under different circumstances. Within certain limits, the more quickly the heat is applied the greater is the quantity, and the better the quality, of the gas obtained from coals; for too slow a heat expels the inflammable matter in the form of tar. The earliest products of the gas are also the heaviest and most combustible, and there is a gradual decline in quality towards the close of the distillation, insomuch, that the last products are inferior by more than one-half to the first. The general name of coal gas is therefore quite indefinite. It is in fact a mixture of the two varieties of carburetted hydrogen, with a third which remains to be more fully investigated, as well as with hydrogen gas, carbonic oxide, carbonic acid, nitrogen and sulphuretted hydrogen gases in ever varying proportions. For the methods of separating these gases from each other, Dr. Henry refers to papers which he has published in the Philosophical Transactions for 1808, 1820, and 1821, and in the third vol. of the second series of the Manchester Society's



Memoirs, or the fifteenth vol. of Annals of Philosophy.

505. 'Coal gas,' he continues, 'as generally produced, has a very disagreable odor, arising from sulphureted hydrogen, and perhaps a little sulphuret of carbon; but both these may be washed out of it by cream of lime with very little loss of illuminating power, and with an entire removal of all unpleasant smell either before or during burning. The best gas has the specific gravity ·650 or upwards; and each volume consumes about 2¼ volumes of oxygen and gives 1¼ volume of carbonic acid; the last portions have a specific gravity as low as ·340, and each volume consumes about 8-10ths of a volume of oxygen and gives about 3-10ths of a volume of carbonic acid. In the best gas, chlorine, properly applied, detects from thirteen to twenty per cent. of olefiant gas, and the remainder is almost pure carbureted hydrogen; but the last products contain little or no olefiant gas, much less carbureted hydrogen, and instead of these a large proportion of hydrogen and carbonic oxide, both of which afford very little light by their combustion.'

506. It is scarcely possible to assign the quantity of gas which ought to be obtained from a given weight of coal, but it may be considered as an approach to a general average to state that 112 lbs. of good coal are capable of giving from 450 to 500 cubic feet of gas, of such quality that half a cubic foot per hour is equivalent to a mould candle of six to the pound, burning during the same space of time.

507. *Oil gas*—'In Nicholson's Journal I have,' says Dr. Henry, 'given an account of some experiments on the gas obtained by the destructive distillation of spermaceti oil, which showed that of all the artificial gases, this, next to olefiant gas, consumes most oxygen, and is the best adapted to afford light.'—Since that time, an apparatus has been invented, by Messrs Taylor of London, which has greatly facilitated the preparation of oil gas on a large scale, and this gas is now much used as a source of artificial light. The process consists in letting whale oil (the purity of which is not essential, since inferior oil answers the purpose,) fall by drops into an iron cylinder, placed horizontally in a furnace, and ignited to a cherry redness. From each wine gallon of oil about 100 cubic feet of gas may with care be obtained, of the specific gravity of more than 900, containing upwards of forty per cent. of gas condensable by chlorine, and of which 100 volumes consume 260 volumes of oxygen and yield 158 of carbonic acid. But of gas from Wigan cannel, when the whole product is mingled together, 100 measures do not saturate more than 155 of oxygen, and give 88 measures of carbonic acid. Oil gas, therefore, from this document, may be inferred to contain, in a given volume, twice the quantity of combustible matter that is present in the average of gas from cannel coal; and its illuminating power will be as 2 to 1. The experiments of Mr. Brande led him to conclude that to produce the light of ten wax candles for one hour, there were required:

2600 cubical inches of	olefiant gas
4875	oil gas
13120	coal gas.

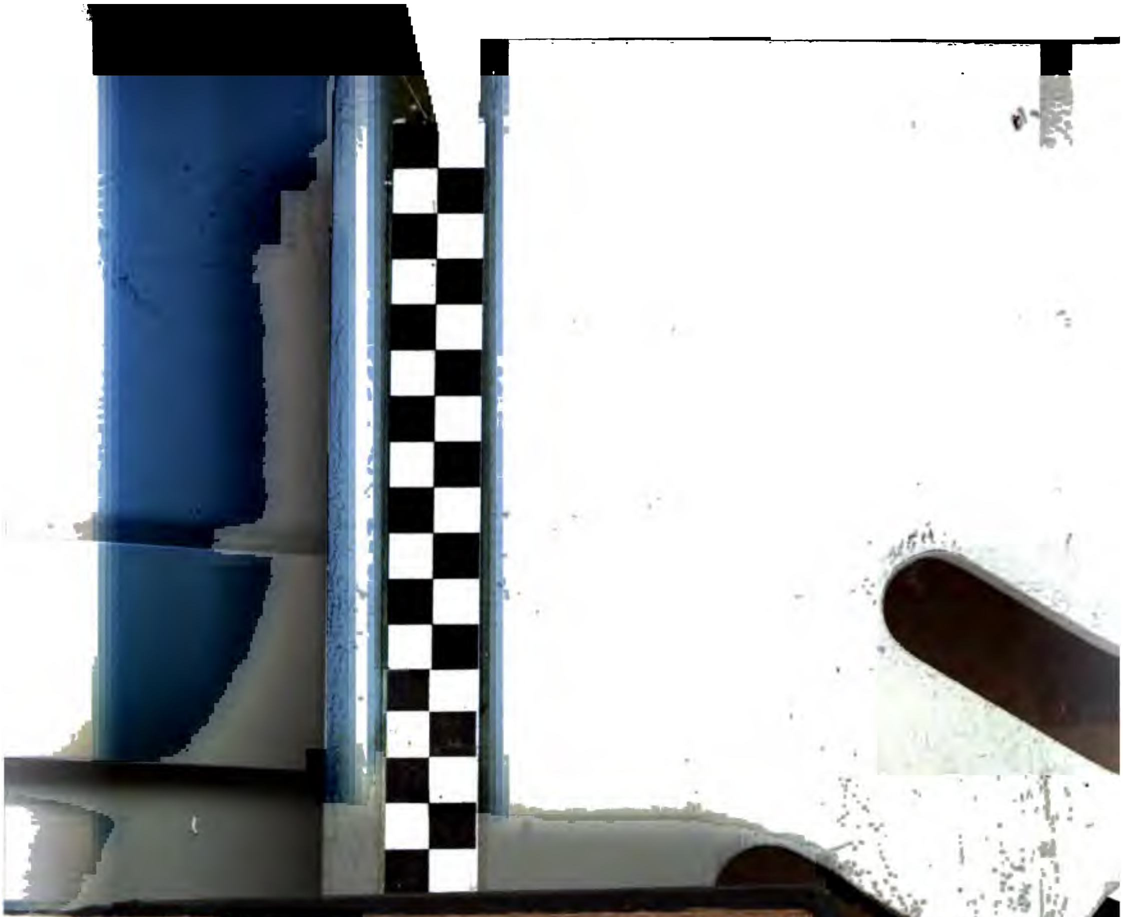
But it seems probable that the coal gas employed in his experiments was below the general standard, and that it is a fair average to consider one volume of oil gas as equivalent to two or at most to two and a half of gas from coal of good quality. This estimate agrees with the experience of the late Mr. Creighton of Glasgow, author of the excellent article Gas Lights, in the Supplement to the Encyclopædia Britannica. Oil gas he considers as superior, in an equal volume, to good average coal gas, in the proportion of only two to one; and he has given the following table of the comparative expense of lighting with these two gases, and with oil and tallow:—

	s.	d.
Valuing the quantity of light given by 1 lb. of tallow in candles at	1	0
An equal quantity of light-from sperm oil, consumed in an Argand's lamp, will cost	0	6½
Ditto from whale oil gas	0	4½
Ditto from coal gas	0	2¼

Twenty cubic feet of coal gas, or ten of oil gas, he considers as equivalent to a pound of tallow, and 5000 grains of good sperm oil to 7000 of tallow, or 1 lb avoirdupois.

508. The advantages of oil gas over gas from coal are, that smaller distilling vessels are required; that gasometers and conduit pipes of half the capacity are sufficient; that no washing apparatus is necessary; that the trouble and expense of removing waste materials is avoided; and that the gas affords a much brighter light with a smaller production of heat, and also of water. When only a moderate quantity of light is required, when it is an object to save room or labor, and in countries where coal is dear, oil gas is entitled to a decided preference; but it cannot be brought into competition with coal gas where coal is cheap, or where the establishments to be lighted are of very considerable magnitude, and of such a nature as to allow of their being freely ventilated.

509. Of the comparative value of different compounds of hydrogen and charcoal, for the purposes of illumination, it still appears to me that the only accurate test is the one which I proposed in Nicholson's Journal for 1805, viz. the quantities of oxygen gas required to saturate equal volumes. In other words, the illuminating powers of different gases will be proportioned to the numbers of volumes of gaseous carbon condensed into one volume of gas; and of these the oxygen consumed, and the carbonic acid produced, afford an accurate measure. If 100 volumes, for instance, of one gas require for perfect combustion 100 volumes of oxygen, and 100 volumes of another gas take 200 of oxygen, the value of the second will be double that of the first. Specific gravity, though a guide to a certain extent, is not a sufficient one; for the weight of a gas may be owing to a large proportion of carbonic oxide, which is capable of giving out only a very small quantity of light. Photometrical experiments also appear to require greater perfection in the instruments that have been invented for that purpose, before we can implicitly trust to results obtained by their means; but there can be no fallacy in the combustion of these gases by oxygen, if conducted with ordinary care,



and especially if, in each instance, an average be taken of two or three trials, which need not occupy more than a few minutes. Nor can it admit of a doubt that, other circumstances being equal, the brilliancy of light evolved by the combustion of gases which are constituted of purely inflammable matter, will bear a proportion to their densities, perhaps even a greater proportion than one strictly arithmetical; because while by the combustion of denser gases a higher temperature is produced, the cooling agencies remain the same. It is probable, therefore, that, of two gases composed of the same ingredients, that which has a double density will afford somewhat more than a double quantity of light.

510. *The fire damp of coal mines* (we continue to extract from Dr. Henry), by an analysis of it which I published in 1806 (Nicholson's Journal xix. 149), was shown to be identical in composition with carbureted hydrogen. This conclusion coincides with the subsequent results of Sir H. Davy, who has enlarged our knowledge of the chemical history of the fire damp by several important facts (Philosophical Transactions, 1816\); and has been led by an ingenious and happy chain of reasoning to a discovery most important to the interest of humanity. The most readily explosive mixture of fire damp with common air he found to be one measure of the inflammable gas, to seven or eight of air. The mixture was not capable of being set on fire by charcoal in a state of active combustion, nor by iron ignited to a red, nor even to a white heat, except when in a state of brilliant combustion: in which respect the fire damp differs from other combustible gases.

511. It was in attempting to measure the expansion occasioned by the combustion of a mixture of fire damp and air, that Sir H. Davy discovered a fact which afterwards led him to the most novel and important results. An explosive mixture could not, he ascertained, be kindled in a glass tube so narrow as one-seventh of an inch diameter; and when two separate reservoirs of an explosive mixture were connected by a metallic tube one-fifth of an inch diameter, and an inch and a half in length; and one of the portions of gas was set on fire, the explosion did not extend to the other. Fine wire sieves or wire gauze, interposed between two separate quantities of an explosive mixture, were also found to prevent the combustion of one portion from spreading to the other. A mixture of fire damp and air, in explosive proportions, was deprived of its power of exploding by the addition of about one-seventh its bulk of carbonic acid, or nitrogen gas.

512. Reflection on these facts suggested to Sir H. Davy, the possibility of constructing a lamp, in which the flame, by being supplied with only a limited quantity of air, might produce carbonic acid and nitrogen in such proportion as to destroy the combustibility of explosive mixtures; and which might also, by the nature of its apertures for giving admittance and exit to the air, be rendered incapable of spreading combustion to the surrounding atmosphere, supposing this to be an inflammable one. This most desirable object was accomplished by the use of air-tight lanterns supplied with air through tubes or canals of small diameter, or through apertures covered with wire gauze below the flame, and having a chimney at the upper part, on a similar system, for carrying off the foul air. The apparatus was afterwards simplified by covering or surrounding the flame of a lamp or a candle with a cylindrical wire sieve, having at least 625 apertures in a square inch. Within this cylinder, when the fire damp encompassing it is to the air as 1 to 12, the flame of the wick is seen surrounded by the feeble blue flame of the gas. When the proportion is as 1 to 5, 6, or 7, the cylinder is filled with the flame of the fire damp; but though the wire gauze becomes red hot, the exterior air, even when explosive, is not kindled. The lamp is therefore safe in the most dangerous atmospheres, and has been used most extensively in the mines of Whitehaven, Newcastle, and other places, without the occurrence of a single failure or accident.

513. The effect of the safety lamp depends on the cooling agency of the wire gauze, exerted on the portion of gas burning within the cylinder. Hence a lamp may be secure where there is no current of an explosive mixture to occasion it being strongly heated; and yet not safe when the current passes through it with great rapidity. But any atmosphere, however explosive, may be rendered harmless by increasing the cooling surface; which may be done either by diminishing the size of the apertures, or by increasing their depth, both of which are perfectly within the power of the manufacturer of the wire gauze.

514. When a small coil of platinum wire is hung above the wick of the lamp, within the wire gauze cylinder, the metal continues to glow long after the lamp is extinguished, and affords light enough to guide the miner in what otherwise would be impenetrable darkness. In this case the combustion of the fire damp is continued so slowly, and at so low a temperature, as not to be adequate to that ignition of gaseous matter which constitutes flame, though it excites a temperature sufficient to render platinum wire luminous. A similar ignition of platinum wire, it has been found, may be supported for many hours, by surrounding the flame of a spirit lamp with small coils of that metal, not exceeding $\frac{1}{100}$ of an inch in diameter. Twelve coils of this wire twisted spirally round the tube of a tobacco-pipe, or round anything that will render the coils about $\frac{1}{10}$ of an inch in diameter, are to surround, six the wick of the lamp, and six to remain elevated above the wick. The wick should be small and quite loose in the burner of the lamp; and the fibres of the cotton surrounded by the coil should be laid as straight as possible. When the lamp, after being lighted for a few moments, is blown out, the platinum wire continues to glow for several hours, as long as there is a supply of spirit of wine, and to give light enough to read by; and sometimes the heat produced is sufficient to rekindle the lamp spontaneously.

515. Mr. Faraday has recently published an account of other combinations of carbon and hydrogen, the one a bicarburet of hydrogen, consisting of two proportionals of carbon and one

hydrogen; and the other a new gas or vapor with the same elements both in kind and proportion as those of olefiant gas, yet in a different state of combination. See *Philosophical Transactions*, 1825.

Hydrogen with Phosphorus.

516. Sir H. Davy gave the name of hydrophosphoric gas to the compound of phosphorus and hydrogen, which is obtained by heating the solid phosphorus acid without the contact of air. Dr. Thomson proposed that it should be called the bi-hydroguret of phosphorus. This gas has an unpleasant smell, but not so offensive as the phosphureted hydrogen. It is not inflammable spontaneously, but when it is heated with oxygen it explodes. In chlorine it inflames spontaneously, and explodes with a white flame. Its specific gravity to hydrogen is as 12 or 13 to 1. 100 cubical inches weigh 29·25 grains. It is constituted we are told of two atoms of hydrogen and one of phosphorus; the hydrogen, however, is condensed into half its bulk. The theory of its formation appears to be, that the water is decomposed, the oxygen of it going with a portion of the phosphorus acid to form phosphoric acid, while the hydrogen with the phosphorus existing in another portion of the phosphorus acid form together the gas.

517. *Phosphureted hydrogen gas*, or the *hydroguret of Thomson*.—There are several ways of obtaining this composition. We are directed by Dr. Thomson to fill a small retort with water acidulated with muriatic acid, and then throw in a few lumps of phosphuret of lime; the mere action of the phosphuret upon water will indeed be sufficient to disengage the gas; the water becoming decomposed, its oxygen combining with part of the phosphorus forming phosphoric acid, this unites with the lime, and, the hydrogen dissolving, another portion of phosphorus passes off as the gas in question; which may also be obtained by putting into five parts of water half a part of phosphorus, cut into very small pieces, with one of finely granulated zinc, and adding three parts of strong sulphuric acid. This affords an amusing experiment. The gas is disengaged in small bubbles which cover the whole surface of the fluid, and take fire on reaching the air, these are succeeded by others and a well of fire is produced.

518. Phosphureted hydrogen gas is colorless, it has a nauseous smell like onions, it inflames spontaneously upon coming into contact with air, and when mixed suddenly with oxygen detonates. It burns also with chlorine, and with nitrous oxide, forming, in the first case, muriatic acid and perchloride of phosphorus. There is a mutual decomposition upon mixing sulphureous acid gas and phosphureted hydrogen. The gas is decomposed by electricity. It deposits phosphorus on standing, without any diminution of volume. It may be regarded as containing one proportional of phosphorus, and one of hydrogen.

519. *Subphosphureted Hydrogen gas*. We have said above that phosphureted hydrogen deposits phosphorus upon standing, and it has been stated that three aeriform compounds of hydrogen and phosphorus exist, the bi-hydroguret of phosphorus, containing 2 proportionals of hydrogen to 1 of phosphorus, the phosphureted hydrogen 1 to 1, and the subphosphureted hydrogen with 1. 0·75

520. The existence of varieties of phosphureted hydrogen has been questioned by Mr Dalton, who conceives that the apparent diversities of composition in these gases are referrible to the admixture of various proportions of free hydrogen in them.

Hydrogen with Sulphur.

521. *Sulphureted hydrogen gas*.—This gas may be obtained by subliming sulphur in hydrogen gas, or presenting sulphur to nascent hydrogen, which is done when sulphuret of iron is acted on by dilute sulphuric acid. But the best mode of obtaining it seems to be, that of mixing bruised sulphuret of antimony (the crude antimony of commerce), with muriatic acid, by which admixture and the proper application of heat the sulphureted hydrogen will be disengaged in large quantity.

522. It has the following properties, a smell like that of rotten eggs, a specific gravity to hydrogen 16 to 1. 100 cubic inches weighing 36 grains. It is quickly fatal to animal life when respired. It is inflammable, and during its combustion water and sulphurous acid are formed. It tarnishes polished metals. It is absorbed by water, and this fluid saturated with the gas reddens the infusion of litmus. It is decomposed by chlorine, and when subjected to a succession of electric explosions, sulphur is thrown down from it without any alteration in the volume of the gas. Sulphureted hydrogen is copiously absorbed by the alkalis and by all the earths, excepting alumina and zirconia. It unites with ammonia in equal volumes. When acted upon by potassium or sodium a brilliant combustion is the consequence; a quantity of hydrogen gas is evolved precisely equivalent to that which the same weight of metal would have separated from water, the metal loses its lustre, and becomes grayish, or amber colored, or reddish; and by the action of diluted muriatic acid the whole of the sulphureted hydrogen is recovered. This experiment proves that sulphureted hydrogen, and consequently sulphur, contains no oxygen, for in that case the potassium having had its affinity for oxygen partly satisfied, would not, after being acted on by the gas, evolve the original quantity of sulphureted hydrogen from water. All that appears to take place during the combustion, is the combination of the metal with sulphur, the liberation of hydrogen, and the formation of a sulphuret of potassium or sodium, which disengages from water exactly as much hydrogen as would have been evolved by the metal in its separate state, and this, hydrogen, while in a nascent state redissolves the sulphur.

523. The bi-sulphureted hydrogen is obtained by mixing muriatic acid with the hydro-sulphuret of potassa, its proportionals are stated as two of sulphur with one of hydrogen.

Hydrogen with Selenium.

524. *Seleniureted Hydrogen Gas*.—This gas is obtained by acting on a compound of selenium and potassium with diluted muriatic acid;

it is colorless, resembles in smell the sulphureted hydrogen, and produces a very irritating effect on the nostrils. It is soluble in water, reddens vegetable blues, and precipitates metallic solutions. Its atomic composition is one of selenium and one of hydrogen.

NITROGEN AND CARBON.

525. *Carburet of nitrogen* (*cyanogen*). This gaseous compound may be obtained by heating dry cyanuret of mercury. It must be collected over mercury. Cyanogen is a gaseous fluid, with a strong penetrating smell. Its specific gravity to hydrogen is 24·4, 100 cubic inches weighing from fifty-four to fifty-five grains. Gay Lussac states its proportional to be two volumes of gaseous carbon, and one of nitrogen, condensed into one.

526. The aqueous solution reddens vegetable blues; but this property seems consequent upon the decomposition, and mutual re-action, of the elements of cyanogen upon those of water. Vauquelin states that it is gradually changed into carbonic and hydro-cyanic acids, ammonia, a peculiar acid (cyanic), and a brown matter, containing carbon. See *Annals of Phil.* vol. xiii. p. 430, and *Annales de Chim.* Oct. 1818.

527. *Prussic acid (hydro-cyanic), cyanogen and hydrogen.*—This compound may be obtained by distilling cyanuret of mercury with muriatic acid. But Vauquelin finding the product small from this process, passed a current of sulphureted hydrogen gas through cyanide of mercury, the tube of the glass which contained it, ending in a receiver, kept cool by a mixture of salt and snow. For the mode in which the London College order its preparation for medical use, see the article PHARMACY.

528. This acid has a great tendency to decompose by keeping. When in a gaseous form, it is absorbed by water and by alcohol. It acts, if given in any quantity, as a speedy poison, and the gas, when received into the lungs, proves quickly fatal. The specific gravity of the gas, compared with hydrogen, is stated to be 12·7, 100 cubic inches weighing 28·575 grains. At a temperature under 95° of Fahrenheit, it forms, with oxygen gas, a mixture which detonates when an electric spark is passed through it. For its use in medicine, see MEDICINE.

529. *Chloro-prussic (chloro-cyanic) acid.*—M. Berthollet discovered that when hydro-cyanic acid is mixed with chlorine, it acquires new properties. Under the notion that the compound thus formed had acquired oxygen, the name oxyprussic acid was applied to it. But Gay Lussac found that it is formed of equal volumes of chlorine and cyanogen, and, on this account, he proposed the name of chloro-cyanic acid to designate it. To prepare this compound he passed a current of chlorine gas through a solution of hydro-cyanic acid, till it destroyed the color of sulphate of indigo. He further deprived it of its excess of chlorine, by agitating the liquid with mercury; and then distillation, with a gentle heat, gave the gas, which was as just stated, called oxyprussic acid. This is not, however, pure chloro-cyanic acid, but a mixture of it with carbonic acid.

530. The acid thus obtained is colorless, volatile, and penetrating; it reddens litmus, is not inflammable, and does not detonate when mixed with twice its bulk of oxygen or hydrogen.

531. Gay Lussac gives the constituents of this acid as follows:—

$$\left.\begin{array}{l}\text{1 vol. of gaseous carbon}\\ \tfrac{1}{2}\text{ a vol. of nitrogen}\\ \tfrac{1}{2}\text{ a vol. of chlorine}\end{array}\right\}\text{condensed into 1 vol.}$$

532. *Cyanide of iodine* is a pungent compound, perfectly white, and in the form of long needles; it is obtained by heating a mixture of one part iodine and two parts cyanide of mercury; both the substances must be quite dry. It is soluble in water, and more readily so in alcohol; unlike the compound of cyanogen with chlorine, the solution of cyanide of iodine does not manifest acid properties. It is resolved by muriatic acid into hydro-cyanic acid and iodine.

533. *Sulphuro-prussic (sulpho-cyanic) acid.*—To this acid Mr. Porrett gave the name of sulphureted chyazic acid. Dr. Ure gives the following directions for its formation: dissolve in water one part of sulphuret of potassa, and boil it for a considerable time with three or four parts of powdered Prussian blue (ferro-cyanite of potassa), added at intervals. Sulphuret of iron is formed, and a colorless liquid, containing the new acid, combined with potassa, mixed with hydro-sulphate and sulphate of potassa. Render this liquid sensibly sour by the addition of sulphuric acid. Continue the boiling for a little, and when it cools add a little peroxide of manganese, in fine powder, which will give the liquid a fine crimson color. To the filtered liquid add a solution, containing per-sulphate of copper and proto-sulphate of iron, in the proportion of two of the former salt to three of the latter, until the crimson color disappears. Sulphuro-prussiate of copper falls. Boil this with a solution of potassa, which will separate the copper. Distil the liquid mixed with sulphuric acid in a glass retort, and the peculiar acid will come over. By saturation with carbonate of baryta, and then throwing down this by the equivalent quantity of sulphuric acid, the sulphuro-prussic acid is obtained pure.

534. Sulpho-cyanic acid is a transparent and colorless liquid; its odor somewhat resembles the acetic acid. Its specific gravity is 1·022. At a boiling heat it dissolves a little sulphur, and then precipitates oxide of silver from the nitrate of a dark color. When the pure acid is employed the precipitate is white.

535. Mr. Porrett infers from his trials that sulpho-cyanic acid consists of one-third by weight of the elements of hydro-cyanic acid, and two-thirds of sulphur.

The salts formed of this acid and different bases have been examined by Mr. Porrett, and an account of them will be found in the fifth volume of the Annals of Philosophy.

536. *Ferro-cyanic Acid (ferrochyazic of Porrett.)*—This acid is ordered to be obtained by adding to a solution of the salt called triple-prussiate, or ferro-cyanate of baryta, sulphuric acid in just sufficient quantity to throw down the baryta.

537. This acid is of a pale yellow color, without smell, is decomposed by heat, and can

never therefore be obtained by distillation; for subjected to this process hydro-cyanic acid, and hydro-cyanate of iron, would be formed, which, by exposure to light, becomes blue. The salts called triple phosphates, are formed by combining the acid in question with alkalis, earths, and the metallic oxides.

538. 'We are indebted,' says Dr. Henry, 'to Mr. Porrett for the view which is most commonly taken of the nature of the acid entering into the composition of the salts formerly called prussiates, or triple prussiates. It had generally been supposed that the protoxide of iron, which is always present in these salts, acted the part of a base, with which, as well as with an alkali or earth, the prussic acid was supposed to be united in the triple compounds. Mr. Porrett, however, has rendered it more probable that the oxide is really an element of the acid, and not a base; for he finds that when the triple prussiate of soda in solution is exposed to galvanic electricity, the oxide of iron is carried along with the elements of the prussic acid to the positive pole, whereas if it had existed as a base, it would have been determined to the negative pole. He proposed for it the name of ferruretted chyazic acid; but I prefer that of ferro-cyanic, which not necessarily excluding hydrogen from its composition, is still consistent with the view arising out of Mr. Porrett's researches. This view explains why the iron in triple prussiates (ferro-cyanates) is not discoverable by the most delicate tests, for it can no more be affected by them than sulphur can be indicated by its appropriate tests, when existing in sulphuric acid.'

For further remarks on the composition and the theory of ferro-prussic formation, see PRUSSIC ACID in the body of the work.

539. The radical of the acid in question is stated to be formed of one atom of iron and three atoms of cyanogen.

540. *Nitrogen and phosphorus* do not appear to produce any definite compound; but, in some instances of animal decomposition, the azote or nitrogen that is evolved seems to hold phosphorus in solution.

COMPOUNDS OF PHOSPHORUS.

541. *Phosphuret of sulphur.*—If one atom or proportional of sulphur be united to one of sulphur by fusion (16 + 12) sulphuretted hydrogen will be evolved, and the compound will be a phosphuret of sulphur, which is much more fusible than is phosphurus itself, and indeed exists in a liquid state at the common temperature of the atmosphere. At a heat below 50° it is crystallisable.

542. *Phosphuret of selenium* has not been satisfactorily analysed.

COMPOUNDS OF SULPHUR.

543. *Bisulphuret of carbon* is a liquid procured by passing sulphur over charcoal that is heated to redness; or by distilling a mixture of charcoal with native bisulphuret of iron.

544. This liquid is colorless; it has a peculiar feted odor, is exceedingly volatile, and has a pungent taste. Its specific gravity is 1·272. It boils at 106° and does not congeal at 60° below 0. It possesses a very extraordinary power of engendering cold during evaporation, the cold being intense. It is inflammable, and when burned with oxygen produces sulphureous and carbonic acids. Chlorine decomposes it and produces chloride of sulphur. The alkalis act upon it slowly; the acids do not appear to affect it.

545. Its atomic proportionals are two of sulphur to one of carbon. It was called by Lampadius, its discoverer, alcohol of sulphur.

546. An acid is obtained by a mixture of the sulphuret of carbon with pure potassa, which acid contains sulphur, carbon, and hydrogen; it was named by Zuse of Copenhagen hydroxanthic, on account of the yellow color of its compounds. That this acid contains hydrogen was proved by iodine when treated with it producing hydriodic acid.

547. Ammonia treated with the sulphuret of carbon undergoes decomposition, and the sulphuret itself likewise becomes decomposed, the result of the combination is the production of two new salts, the one stated to be a new acid, which may be considered as a compound of sulpho-cyanic, and sulphuretted hydrogen, the other containing a double sulphuret of hydrogen and carbon. See *Ann. de Chem. et de Phys.* xxvi. 66, 113, and *Quarterly Journal of Science* &c. xviii. 149.

548. *A Sulphuret of selenium* may be formed by mixing and melting one part of selenium with 100 parts of sulphur; or better by precipitating a solution of selenic acid by sulphuretted hydrogen gas, washing the product with a small quantity of muriatic acid.

549. A sulphuret of boron may be obtained by burning boron in the vapor of sulphur.

PART IV.

METALS.

550. These constitute a most important class of bodies, as well in relation to the arts and luxuries of life generally, as in reference to their chemical circumstances or susceptibilities; and in this last point of view modern science has unfolded particulars of which the philosophy of former times was entirely ignorant; indeed the number of substances which go under the name of metals has been lately much increased, many of them being of very recent discovery, and the discovery itself being the result of scientific research, rather than of incidental observation.

551. Some of the bodies however at present acknowledged as metals have scarcely been exhibited in a separate form, and are classed among the metals merely upon analogical principles, and because the earths in which they have been discovered exhibit a manifest resemblance to the oxides of those metals that have been detected in an abstract and independent form.

552. We shall first treat of the general properties of metals. We shall then give from the best authorities, and as far as they are known, the dates, order and times, in which respective metals were discovered, with the names of the discoverers; and afterwards proceed to treat individually of each of them.

553. Metals are characterised in general by a peculiar lustre, indeed the metallic lustre is proverbial. Of this property, however, they are possessed in strikingly different degrees.

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562. It is now indeed admitted as a demonstrated principle that the reverse effect has place, that the metals, at a high temperature, are made to abstract the oxygenous portion of the atmosphere in which they are enveloped, and it is in consequence of their union with this substance that the variety of change is operated upon them; variety of change we say, for different metals require different temperatures for the union of which we are speaking, and they are susceptible of being acted on some with less and some with more facility.

563. It should seem, however, that the law of multiples or definite proportions takes place in these instances of combination, and that the proportions in which metals unite with oxygen are so regulated that the oxygen of the greater proportion is a simple multiple of that in the less.

564. Metals unite, as above stated, with chlorine, and when they are exposed at a high temperature to this gas the results are compounds of chlorine with the respective metals acted on; and indeed the chlorine displays an exceedingly powerful affinity for the metal, being capable of expelling the whole oxygen from a metallic oxide, and taking its place. In this case, too, the law of proportionals still holds.

565. Iodine too, we have remarked, enters into composition with the metals, and produces iodides, as oxygen occasions oxides, and chlorine chlorides; but this substance is not capable of disengaging oxygen from the greater number of oxides, as is the case with chlorine.

566. Metals are for the most part susceptible of combination with each other; but for this purpose fusion or melting is required. When thus combined metals are called alloys, and they maintain, for the most part, their characteristic lustre. See the word ALLOY.

567. They combine with hydrogen, but the combinations with this substance are neither large in number, nor of much importance.

568. Those metals which are speedily acted on by common air and oxygen are also generally susceptible of decomposing water; some of them rapidly, others slowly. There are some metals which are not acted on by air deprived of moisture, nor by water deprived of air; but moist air, or water containing air, effect their oxidisement; this appears to be the case with iron. (Dr. Mar-

shall Hall, Quarterly Journal, vii. 55). Water combines with some of the metallic oxides and produces oxides or metallic hydrates. In these the relative proportion of water is definite. Some are easily decomposed by heat, as hydrate of copper, others retain water, even when heated to redness. *Brande.*

569. With sulphur their combinations are much more numerous, complicated, and important; some of the native metals are found in this combination, and the sulphurets have generally a semi-metallic appearance.

570. Phosphorus combines with the metals and produces phosphurets.

571. And there is one instance especially of carbon uniting with a metal (iron) in which the compound possesses peculiar and characteristic properties according to the proportion of either ingredient. Other carburets are not of much importance.

572. The metals, including those which have not hitherto been found in an uncombined form, are forty-two in number; of these seven have been known from the remotest times; these seven are:

1.	Gold, the ancient symbol of which was the Sun	☉	Known from remote antiquity.
2.	Silver	Moon ☽	
3.	Mercury	Mercury ☿	
4.	Copper	Venus ♀	
5.	Iron	Mars ♂	
6.	Tin	Jupiter ♃	
7.	Lead	Saturn ♄	
8.	Zinc.—The word zinc is first found in the writings of Paracelsus, although it is supposed that the ancients were acquainted with some of its ores		1541
9.	Bismuth, mentioned by Agricola		1530
10.	Antimony. See part 1 (Valentine)		Fifteenth century.
11.	Arsenic,	Discovered by Brandt	1733
12.	Cobalt,		
13.	Platinum. Wood first recognised it as a peculiar body (Phil. Trans. 44)		1741
14.	Nickel. First shown distinctively by Cronstedt (Stockholm Trans.)		1751
15.	Manganese was obtained by Gahn in		1774
16.	Tungsten, discovered by M. M. Delhuyart		1781
17.	Tellurium	Muller	1782
18.	Molybdenum	Muller and Hulm	1782
19.	Titanium	Gregor	1781
20.	Uranium	Klaproth	1789
21.	Chromium	Vauquelin (Annales de Chimie, vol. xxv.)	1797
22.	Columbium	Hatchett (Phil. Trans.)	1802
23.	Palladium	Wollaston (Phil. Trans.)	1803
24.	Rhodium		
25.	Iridium	Tennant (Phil. Trans.)	1803
26.	Osmium		
27.	Cerium	Hisinger and Berzelius	1804
28.	Potassium	Sir H. Davy	1807
29.	Sodium		
30.	Barium		
31.	Strontium		
32.	Calcium		
33.	Lithium	Arfwedsdon	1818
34.	Cadmium	Stromeyer	1819
35.	Magnesium	All very recently discovered.	
36.	Glucinum		
37.	Yttrium		
38.	Aluminum		
39.	Thorinum		
40.	Zirconium		
41.	Silicium		
42.	Selenium?		

The last eight are those which have already been alluded to as not having been yet seen in a separate form, and for the discovery of which chemistry has been mainly indebted to the experiments and researches of Sir H. Davy; the last indeed, selenium, has already been treated of under another head, and has at best but an equivocal title to be considered as a metal.

573. Chemical authors have adopted various classifications of metals; but all of them seem to be more or less arbitrary or hypothetical; since 'their relations to the various objects of chemistry are so complex and diversified,' and because there is no natural order of these bodies, excepting inasmuch as some are possessed of those qualities in a more marked degree, which have been considered their prominent characteristics.

574. 'I have not (says Dr. Ure in his excellent dictionary) seen any arrangement to which important objections may not be offered; nor do I hope to present one which shall be exempt from criticism. The main purposes of a methodical distribution, are to facilitate the acquirement, retention, and application of knowledge. With regard to metals in general, I conceive these purposes may be to a considerable extent attained, by beginning with those which are most eminently endowed with the characters of the

genus, which most distinctly possess the properties that constitute their value in common life, and which caused the early inhabitants of the earth to give to the first metallurgists a place in mythology. Happy had their idolatry been always confined to such real benefactors.

> Inventas aut qui vitam excoluere per artes,
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By arranging metals according to the degree in which they possess the obvious qualities of unalterability by common agents—tenacity, and lustre, we also conciliate their most important chemical relations, namely those to oxygen, chlorine, and iodine; since their metallic pre-eminence is, popularly speaking, inversely as their affinities for their dissolvents. In a strictly scientific view, these habitudes with oxygen should perhaps be less regarded in their classification, than with chlorine, for this element has the most energetic attraction for the metals. But, on the other hand, oxygen which forms one-fifth of the atmospheric volume, and eight-ninths of the aqueous mass, operates to a much greater extent among metallic bodies, and incessantly modifies their form both in nature and art. Now the order we propose to follow will indicate very nearly their relations to oxygen, which we may observe is the principal of arrangement pursued, but in the reverse way, by Brande and others. 'As we progressively descend the influences of that beautiful element progressively increase. Among the bodies near the head, its powers are subjected by the metallic constitution; but among those near the bottom, it exercises an almost despotic sway, which Volta's magical pile, directed by the genius of Davy, can only suspend for a season. The emancipated metal soon relapses under the dominion of oxygen.'

575. After this introduction, Dr. Ure presents his readers with a table of the metals, which we shall take the liberty of transcribing into our pages; and then treat of them at large in the succession which this tabular view indicates.

General Table of the Metals.

NAMES.	Sp. gr.	Precipitants.	Colour of precipitates by			
			Ferro-prussiate of potash.	Infusion of galls.	Hydro-sulphurets.	Sulphuretted hydrogen.
1 Platinum	21·47	Mur. ammon.	0	0		Black met. pow.
2 Gold	19·30	Sulph. iron Nitr. mercury	Yellowish-white	Green; met.	Yellow	
3 Silver	10·45	Common salt	White	Yellow-brown	Black	Black
4 Palladium	11·8	Prus. mercury	Deep orange		Blackish-brown	Black-brown
5 Mercury	13·6	Common salt Heat	White passing to yellow	Orange-yellow	Brownish-black	Black
6 Copper	8·9	Iron	Red-brown	Brown	Black	Do.
7 Iron	7·7	Succin. soda with perox.	Blue, or white passing to blue	Protox. 0 Perox. black	Black	0
8 Tin	7·29	Corr. sublim.	White	0	Protox. black	Brown
9 Lead	11·35	Sulph. soda	Do.	White	Black	Black
10 Nickel	8·4	Sulph. potash?	Do.	Gray-white	Do.	Do
11 Cadmium	8·6	Zinc	Do.	0	Orange-yellow	Orange-yellow
12 Zinc	6·9	Alk. carbonates	Do.	0	White	Yellowish-white
13 Bismuth	9·88	Water	Do.	Yellow	Black-brown	Black-brown
14 Antimony	6·70	Water Zinc	With dilute solutions white	White from water	Orange	Orange
15 Manganese	8·	Tart. pot.	White	0	White	Milkiness
16 Cobalt	8·6	Alk. carbonates	Brown-yellow	Yellow-white	Black	0
17 Tellurium	6·115	Water Antimony	0	Yellow	Blackish	
18 Arsenic	8·35? 5·76?	Nitr. lead	White		Yellow	Yellow
19 Chromium	5·90	Do.	Green	Brown	Green	
20 Molybdenum	8·6	Do.?	Brown	Deep-brown		Brown
21 Tungsten	17·4	Mur. lime?	Dilute acids			
22 Columbium	5·6?	Zinc or inf. galls	Olive	Orange	Chocolate	
23 Selenium	4·3?	Iron Sulphite amm.				
24 Osmium	?	Mercury		Purple passing to deep blue		
25 Rhodium	10·65	Zinc?	0		0	
26 Iridium	18·68	Do?	0			
27 Uranium	9·0	Ferro-pr. pot.	Brown-red	Chocolate	Brown Yellow	0
28 Titanium	?	Inf. galls.	Grass-green	Red-brown	Grass-green	0
29 Cerium	?	Oxal. amm.	Milk-white	0	White	0
30 Potassium	0·865	Mur. plat. Tart. acid	0	0	0	
31 Sodium	0·972					
32 Lithium						
33 Calcium						
34 Barium						
35 Strontium						
36 Magnesium						
37 Yttrium						
38 Glucinum						
39 Aluminum						
40 Thorinum						
41 Zirconium						
42 Silicium						

shall Hall, Quarterly Journal, vii. 55. Water combines with some of the metallic oxides and produces oxides or metallic hydrates. In these the relative proportion of water is definite. Some are easily decomposed by heat, as hydrate of copper, others retain water, even when heated to redness. *Brande.*

569. With sulphur their combinations are much more numerous, complicated, and important; some of the native metals are found in this combination, and the sulphurets have generally a semi-metallic appearance.

570. Phosphorus combines with the metals and produces phosphurets.

571. And there is one instance especially of carbon uniting with a metal (iron) in which the compound possesses peculiar and characteristic properties according to the proportion of either ingredient. Other carburets are not of much importance.

572. The metals, including those which have not hitherto been found in an uncombined form, are forty-two in number; of these seven have been known from the remotest times; these seven are:

1. Gold, the ancient symbol of which was the Sun		☉	Known from remote antiquity.
2. Silver	Moon	☽	
3. Mercury	Mercury	☿	
4. Copper	Venus	♀	
5. Iron	Mars	♂	
6. Tin	Jupiter	♃	
7. Lead	Saturn	♄	
8. Zinc.—The word zinc is first found in the writings of Paracelsus, although it is supposed that the ancients were acquainted with some of its ores			1541
9. Bismuth, mentioned by Agricola			1530
10. Antimony. See part I (Valentine)			Fifteenth century.
11. Arsenic, 12. Cobalt,	Discovered by Brandt		1733
13. Platinum. Wood first recognised it as a peculiar body (Phil. Trans. 44)			1741
14. Nickel. First shown distinctively by Cronstedt (Stockholm Trans.)			1751
15. Manganese was obtained by Gahn in			1774
16. Tungsten, discovered by M. M. D'Elhuyart			1781
17. Tellurium	Muller		1782
18. Molybdenum	Muller and Hielm		1782
19. Titanium	Gregor		1791
20. Uranium	Klaproth		1789
21. Chromium	Vauquelin (Annales de Chimie, vol. xxv.)		1797
22. Columbium	Hatchett (Phil. Trans.)		1802
23. Palladium 24. Rhodium	Wollaston (Phil. Trans.)		1803
25. Iridium 26. Osmium	Tennant (Phil. Trans.)		1803
27. Cerium	Hisinger and Berzelius		1804
28. Potassium 29. Sodium 30. Barium 31. Strontium 32. Calcium	Sir H. Davy		1807
33. Lithium	Arfwedson		1818
34. Cadmium	Stromeyer		1819
35. Magnesium 36. Glucinum 37. Yttrium 38. Aluminum 39. Thorinum 40. Zirconium 41. Silicium 42. Selenium?	All very recently discovered.		

The last eight are those which have already been alluded to as not having been yet seen in a separate form, and for the discovery of which chemistry has been mainly indebted to the experiments and researches of Sir H. Davy; the last named, selenium, has already been treated of under another head, and has at best but an equivocal title to be considered as a metal.

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4 Palladium	11·8	Prus. mercury	Deep orange		Blackish-brown	Black-brown
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6 Copper	8·9	Iron	Red-brown	Brown	Black	Do.
7 Iron	7·7	Succin. soda with perox.	Blue, or white passing to blue.	Protox. 0 Perox. black	Black	0
8 Tin	7·29	Corr. sublim.	White	0	Protox. black	Brown
9 Lead	11·35	Sulph. soda	Do.	White	Black	Black
10 Nickel	8·4	Sulph. potash?	Do.	Gray-white	Do.	Do
11 Cadmium	8·6	Zinc	Do.	0	Orange-yellow	Orange-yellow
12 Zinc	6·9	Alk. carbonates	Do.	0	White	Yellowish-white
13 Bismuth	• 9·88	Water	Do.	Yellow	Black-brown	Black-brown
14 Antimony	6·70	Water Zinc	With dilute solutions white	White from water	Orange	Orange
15 Manganese	8·	Tart. pot.	White	0	White	Milkiness
16 Cobalt	8·6	Alk. carbonates	Brown-yellow	Yellow-white	Black	0
17 Tellurium	6·115	Water Antimony	0	Yellow	Blackish	
18 Arsenic	8·35? 5·76?	Nitr. lead	White		Yellow	Yellow
19 Chromium	5·90	Do.	Green	Brown	Green	
20 Molybdenum	8·6	Do.?	Brown	Deep-brown		Brown
21 Tungsten	17·4	Mur. lime?	Dilute acids			
22 Columbium	5·6?	Zinc or inf. galls	Olive	Orange	Chocolate	
23 Selenium	4·3?	Iron Sulphite amm.				
24 Osmium	?	Mercury		Purple passing to deep blue		
25 Rhodium	10·65	Zinc?	0		0	
26 Iridium	18·68	Do?	0			
27 Uranium	9·0	Ferro-pr. pot.	Brown-red	Chocolate	Brown Yellow	0
28 Titanium	?	Inf. galls.	Grass-green	Red-brown	Grass green	0
29 Cerium	?	Oxal. amm.	Milk-white	0	White	0
30 Potassium	0·865	Mur. plat. Tart. acid	0	0	0	
31 Sodium	0·972					
32 Lithium						
33 Calcium						
34 Barium						
35 Strontium						
36 Magnesium						
37 Yttrium						
38 Glucinum						
39 Aluminum						
40 Thorinum						
41 Zirconium						
42 Silicium						

576. The first twelve are malleable, and so are the 30th, 31st, and 32nd in their congealed state.

577. The first sixteen yield oxides, which are neutral salifiable bases.

578. The metals 17, 18, 19, 20, 21, 22, and 23, are acidifiable by combination with oxygen. Of the oxides of the rest, up to the 30th, little is known. The remaining metals form, with oxygen, the alkaline and earthy bases.

579. We propose in the following pages, as above intimated, to adopt the arrangement of Dr. Ure; but, before we commence the separate consideration of the substances now to be noticed, it may not be uninteresting to state the order in which Mr. Brande, Dr. Henry, and Dr. Murray treat of them.

580. 'Various classifications of the metals,' says the first of these writers, 'have been adopted by chemical authors; some dependent upon their physical, others upon their chemical properties. The former can scarcely be considered as adapted to chemical enquiry, and the latter involve numerous difficulties in consequence of the gradual transition of metals of one class into those of another. I shall consider the metals in the order in which they are set down in the following table, and which is nearly that of their respective attractions for oxygen.

1. Potassium
2. Sodium
3. Lithium
4. Calcium
5. Barium
6. Strontium
7. Magnesium

8. Manganese
9. Iron
10. Zinc
11. Tin
12. Cadmium

13. Copper
14. Lead
15. Antimony
16. Bismuth
17. Cobalt
18. Uranium
19. Titanium
20. Cerium
21. Tellurium
22. Selenium
23. Arsenic
24. Molybdenum
25. Chromium
26. Tungsten
27. Columbium

28. Nickel
29. Mercury
30. Osmium
31. Iridium
32. Rhodium
33. Palladium
34. Silver
35. Gold
36. Platinum

37. Silicium
38. Aluminum
39. Zirconium
40. Glucinum
41. Yttrium
42. Thorinum.

581. Of these metals, the first seven produce alkaline oxides, which are very difficult of reduction; and they readily decompose water at all temperatures, a character which announces their powerful attraction for oxygen; the next five decompose water, when their temperature is raised to redness; the ten following do not decompose water at a red heat; nor do the next five, which produce acids by uniting to oxygen. The oxides of these twenty-seven metals are not reducible by heat alone, though some of them when heated give out a portion of oxygen. The nine metals which next follow, osmium excepted, have a comparatively feeble attraction for oxygen, and, when their oxides are heated, they are reduced to the metallic state. The last six metals are placed in the list from analogy; they are only known in the state of oxides, which have not hitherto been reduced.' *Brande.*

582. 'From a comparison of the resemblances among metals,' says Dr. Henry, 'both as to physical and chemical properties, several arrangements of them have been formed into smaller classes. The circumstance on which a subordinate division of the metals is perhaps best founded, is the nature of their relation to oxygen. Without creating more of these divisions than are absolutely necessary, it appears to me that they may be conveniently arranged under the following heads:—

Class I. Metals that afford oxides which cannot be reduced to a metallic form without the addition of combustible matter.

Class II. Metals, the oxides of which are decomposed by heat only.

i. The first class, which have been termed base metals to distinguish them from the noble or perfect, may be again subdivided as follows:

583. 1. Metals that are either known from experiment, or believed from analogy, to absorb oxygen at high degrees of heat, and to decompose water at common temperatures. The metals that have been actually ascertained to produce these effects are six, viz.

Potassium
Sodium
Lithium
Calcinum
Barium and
Strontium.

584. There is a striking resemblance also between the properties of the oxides of these metals. Those of potassium, sodium, and lithium are readily soluble in water; have a peculiar acrid taste; change certain blue vegetable colors to green, and some yellow ones to brown; neutralise acids, forming salts, which, for the most part, are easily soluble; and from these similarities have been classed together under the name of alkalis. With these oxides, those of calcium, barium, and strontium agree so nearly, that they also might without any impropriety be called alkalis; but being themselves, as well as several of their neutral compounds with acids, less readily soluble in water, they have been termed, perhaps without sufficient reason, alkaline earths.

585. The metals belonging to this subdivision, which are as yet distinctly known to us only when in combination; but which are presumed from analogy to have a similar relation to oxygen and water with those already enumerated; are the seven following:—

Magnesium
Glucinum
Yttrium
Aluminum
Thorinum
Zirconium and
Silicium.

586. The oxides of these seven metals are sparingly soluble in water; have little or no taste; do not afford solutions in water which are capable of acting on vegetable blue or brown colors; but (silica excepted) unite with acids, and form neutral salts. They have been hitherto termed earths, or earths proper; though the grounds of their distinction from other metallic oxides are constantly becoming more limited. It has been

questioned whether one of these bodies, silica, does not, as to its powers of combination, exhibit rather the qualities of an acid; and whether its base, which some writers have called silicon, can properly be arranged among metals.

587. 2. The second subdivision includes those metals which absorb oxygen from atmospheric air at high temperatures; and decompose water, but only at increased temperatures. They are five in number, viz.

Manganese
Zinc
Iron
Tin and
Cadmium

The last of these is associated with the others from the agreement of its general properties with those of tin.

588. 3. Metals of the third subdivision, are capable like the foregoing, of absorbing oxygen at high temperatures, but not of decomposing water at any temperature. There are no less than fourteen which answer to this description; viz.

Arsenic
Molybdenum
Chromium
Tungsten
Columbium
Antimony
Uranium
Cerium
Cobalt
Titanium
Bismuth
Copper
Tellurium and
Lead.

Of these metals, the first five are distinctly acidifiable; and the nine others are oxidisable only.

589. ii. The second class of metals, the oxides of which are reducible by heat, without the addition of combustible matter, are nine in number, viz.

Mercury
Silver
Gold
Platinum
Palladium
Rhodium
Iridium
Osmium and
Nickel.

The first three have long been classed together under the name of noble or perfect metals, and the remaining ones have been associated with them as they have been respectively discovered. Nickel, which was for some time placed among the imperfect metals, was removed a few years since into this class, after a more accurate investigation of its relation to oxygen.'

590. Dr. Murray introduces his account of individual metals in the following words: 'The class of metals has been subdivided into orders, under which the individual metals are arranged. Gold, silver, and platina, preserving their lustre on exposure to the air, possessing a high degree of ductility and malleability, and not being oxidated when exposed to a high heat, have been placed in one order, under the appellation of perfect or noble metals. Quicksilver, copper, iron, tin, and lead, possessing ductility and malleability, but being oxidated by heat, have been placed together under the name of imperfect metals. The others, zinc, antimony, bismuth, cobalt, nickel, manganese, arsenic, (and the greater number of the newly-discovered metals, may be added to this order), having little ductility or malleability, were termed semi-metals. This was the old division, others have been introduced; but any classification of this kind is inaccurate; no advantage is gained by forming such orders, and they are altogether artificial each metal forms a species, and they may be considered individually in that order in which the transition is most natural, beginning with those which have the characteristic metallic properties, tenacity and specific gravity, in the highest degree. Those of recent discovery, and which are only imperfectly investigated, may be placed after the others.'

591. It will be obvious to the reader upon what principle we have thus laid before him the remarks of some of our best authors, on the subject of metallic classification; the very discussion involves matter of much interest, inasmuch as, if duly attended to information will be found in it respecting the habits of the several metals, in reference to combustibility, acidifiability, if we may so express it, and other particulars. We now proceed, as it was above intimated we should, to follow the order of Dr. Ure, on account of its appearing to us to unite in some measure the natural with the chemical schemes of arrangement; and therefore to effect the purpose of assisting the conception and the recognition of modern discoveries, without violating the order in which it was the custom to treat of metallic substances, prior to the important revolutions in the doctrines and principles of chemistry.

592. It is right to say, that, in many instances at least, the habits, &c. of the metals will be discussed less in detail than might be expected in a treatise on chemistry, on account of notices which it is found necessary to take of them in the alphabetical arrangement of our work.

PLATINUM.

593. This is a metal of modern discovery. It is met with in South America; but is mixed with several other substances when it reaches this country; the pure metal may be obtained by dissolving the ore in nitro-muriatic acid, and then adding a solution of muriate of ammonia.

594. Platinum is white, somewhat resembling silver in color, but heavier by far; and it is exceedingly ductile, tenacious, and malleable. It is extremely difficult of fusion. Under the blow-pipe, however, with oxygen gas, it may be melted. It is a very slow conductor of heat; its expansibility by heat is less than that of steel. Like iron it may be welded. Its oxides are only procurable by a circuitous process; it is said to be oxidifiable in three proportions, viz. about 8, 12, and 16 to 100 of the metal. But the subject, says Dr. Henry, requires more accurate investigation before we can assign with any confidence its equivalent number.

595. The metal is acted on by nitro-muriatic acid, as above stated, and by chlorine. Chloride of platinum is to be obtained by evaporating the solution in the nitro-muriatic acid; then heating the product to whiteness, by which process chlorine gas will be evolved. The dry compound is a chloride of platinum, which may be crystallised by careful management; it has the property of being precipitated by a solution of muriate of

kind. The second requires a smart blow, or long continued friction, to occasion its detonation.

626. Silver combines with chlorine and forms a chloride of silver, which may be most easily obtained by adding a solution of nitrate of silver to one of common salt, (muriate of soda, or chloride of sodium;) a precipitate falls of a white color, which, upon exposure to the air, becomes brown, and ultimately black. When this chloride of silver is heated to dull redness, in a silver crucible, it fuses, and upon cooling concretes into a semi-transparent grayish substance, which is called luna-cornea, or horn silver.

627. Chloride of silver is very soluble in liquid ammonia; it also dissolves in hyposulphurous acid, and is decomposed by hydrogen gas; but hydrogen freed from all impurities, and directed upon moistened chloride of silver in the dark effects no change. *Faraday, Journal of Science*, viii. p. 375.

Chloride of silver is found native in some of the mines.

628. *Iodide of silver* may be formed by adding hydriodic acid to a solution of nitrate of silver. This is of a greenish-yellow color, and is not only insoluble in water, but also in liquid ammonia.

629. *Sulphuret of silver.*—The common tarnish of silver, as above intimated, is the formation of a sulphuret upon its surface. The sulphurets of the alkalis, and sulphureted hydrogen gas, precipitate silver from its solutions, and form sulphurets. Native sulphuret, or vitreous silver ore, occurs in various forms.

630. With phosphorus, silver forms a white brittle compound—a phosphuret of the metal.

631. *Salts of silver.* Chlorate of silver is obtained by digesting oxide of silver in chloric acid. It assumes the form of rhomboidal crystals.

632. *Iodate of silver* is precipitated in the form of a white powder, by adding iodic acid to the nitrate in solution. This is soluble in ammonia.

633. *Sulphate of silver* is formed by mixing nitrate of silver with sulphate of soda. It may be also procured by boiling silver in sulphuric acid. This salt appears in the form of needle-shaped prismatic crystals.

634. *Hypo-sulphite of silver* may be formed by dropping a weak solution of nitrate of silver into a weak solution of hypo-sulphate of soda. The flavor of this salt is highly sweet, though composed of bitter ingredients.

635. *Nitrate of silver.*—Nitric acid diluted with about three parts of water dissolves silver readily, and nitric oxide gas is disengaged. If the silver used be pure, the solution will be colorless; if there be any mixture of copper, it will assume a greenish cast.

636. This solution when evaporated deposits large regular crystals, of a white color, which however blacken when exposed to the light. A solution of the salt stains animal substances a deep black; and, what is very curious, the salt itself when taken into the stomach in small quantities, as employed medicinally, occasionally produces a grayish tinge over the whole skin, which remains for a great length of time.

637. If the salt be heated in a silver crucible it fuses, and then, when cast into small cylinders, forms the lapis infernalis or lunar caustic of the shops; the argenti nitras of the London Pharmacopœia.

638. When mercury is introduced into the solution of nitrate of silver, a beautiful crystalline deposit is produced, which is called arbor Dianæ. Beaumé directs the following process in order to be successful with this experiment:—'Mix together six parts of a solution of silver in nitric acid, and four of a solution of mercury in the same acid, both completely saturated. Add a small quantity of distilled water; and put the mixture into a conical glass, containing six parts of an amalgam made with seven parts of mercury and one of silver. At the end of some hours there appears on the surface of the amalgam a precipitate in the form of a vegetation.' Proust, however, tells us that nothing more is necessary to produce the arborisation, as beautiful as may be, than to throw mercury into nitrate of silver very considerably diluted.

639. Nitrate of silver is employed for writing upon linen, under the name of marking ink.

640. *Phosphate of silver* is formed by dropping a solution of phosphate of soda into nitrate of silver. This compound is used in preparing chloric acid.

641. Silver is capable of combining with most of the other metals. The standard silver of this country is an alloy with copper, in the proportion of 0·90 to 11·10. See *Aikin's Chemical Dictionary*, and *Children's Translation of Thenard on Chemical Analysis*.

PALLADIUM.

642. Dr. Wollaston directs the following process for obtaining palladium. Digest the ore of platinum in nitro-muriatic acid, neutralised by soda; separate the platinum by muriate of ammoniæ and filter. Then to the filtered liquor let a solution of cyanuret of mercury be added. A flocculent precipitate is gradually formed, which is prussiate of palladium, and which yields palladium upon exposure to heat.

643. Palladium is of a dull white color, it is malleable and ductile. It requires for its fusion a temperature above that required for the fusion of gold. Muriatic acid, by being boiled upon this metal, acquires a beautiful red color. With sulphuric acid a blue color is produced. Nitric acid acts with more energy upon it, than either the sulphuric or muriatic; but its best solvent is the nitro-muriatic acid; and from all the solutions of the metal in the acids, alkalis and earths will produce precipitates. Palladium combines with sulphur, with potassa, and with the other metals. Like platinum, palladium destroys the color of gold, even when mixed with it in very small proportions. Dr. Wollaston has furnished an alloy of gold and palladium for the graduation of the magnificent circular instrument, constructed by Mr. Troughton for the Greenwich observatory. It has the appearance of platinum, and a degree of hardness which peculiarly fits it for receiving the graduations. *Henry.*

MERCURY.

644. This, as we have before stated, is the only known metal that is fluid at the ordinary temperature of the atmosphere; and it requires for its solidity that the temperature be reduced to

about 40° below zero of Fahrenheit. At about 660° it boils and is converted into vapor.

645. This metal has been known from a very early period. It was named quicksilver from its semi-fluidity, joined with its white silvery appearance. It is occasionally adulterated by a mixture of lead or bismuth; but it is not then so fluid as when pure. The native metal occurs in small fluid globules, in most of the mines which produce the ores of this metal.

646. *Oxides of mercury.*—Oxygen combines with mercury in two proportions, forming the black oxide or protoxide of the metal, which may be obtained by long agitation of it in contact with oxygen, or by washing calomel with hot lime water, or by boiling calomel with strong solutions of potassa or soda. This was named by Boerhaave, Ethiops per se. It exists in the pilula hydrargyri, and in the mercurial ointment of the Pharmacopœia.

647. The other or red oxide or peroxide of mercury is produced by exposing the fluid metal, at a high temperature, for several days to the action of oxygen. This oxide was formerly called precipitate per se, or calcined mercury, and is the hydrargyri oxidum rubrum of the Pharmacopœia. This is said to be composed of 100 metal, and 8 of oxygen, while the black oxide contains just half the proportion of oxygen.

648. Peroxide of mercury is decomposed if exposed to the light for a length of time. It is soluble in water, and with ammonia forms an ammoniuret, which is decomposed by heat.

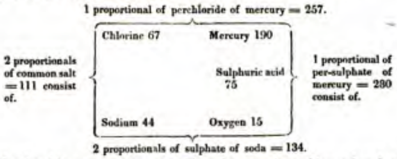
649. *Mercury and chlorine.*—These combine in two proportions, forming the chlorine or bichloride, and the proto-chloride (calomel). These compounds are usually named corrosive sublimate, and calomel. As these salts are preparations of much interest and importance, we shall take the liberty of extracting from Mr. Brandes' Manual, his remarks on their formation and properties.

650. Corrosive sublimate, or bi-chloride, or, as Mr. Brande calls it, perchloride, may be obtained, says he, by a variety of processes.

651. When mercury is heated in chlorine, it burns with a pale flame; the gas is absorbed, and a white volatile substance rises, which is the perchloride.

652. It may also be obtained by dissolving peroxide of mercury in muriatic acid, evaporating to dryness, re-dissolving in water, and crystallising.

653. The ordinary process for making corrosive sublimate, consists in exposing a mixture of chloride of sodium (common salt), and per-sulphate of mercury, to heat in a flask, or other proper subliming vessel, a mutual decomposition ensues. The chlorine of the common salt unites to the mercury of the sulphate, and forms bichloride of mercury. The oxygen of the oxide of mercury converts the sodium of the salt into soda, which, with the sulphuric acid, produces sulphate of soda. This decomposition is exhibited in the following diagram:—


1 proportional of perchloride of mercury = 257.
Chlorine 67
Mercury 190
2 proportionals of common salt =111 consist of.
Sulphuric acid 75
1 proportional of per-sulphate of mercury = 280 consist of.
Sodium 44
Oxygen 15
2 proportionals of sulphate of soda = 134.

Mr. Brande after this statement presents his readers with an account of the methods followed, both in the London Pharmacopœia, and at Apothecaries' Hall, for the composition of the corrosive sublimate; but, as we shall have to give these in the article Pharmacy, we here omit them.

654. Perchloride of mercury is usually seen in the form of a perfectly white, semi-transparent mass, exhibiting the appearance of imperfect crystallisation. It is sometimes procured in quadrangular prisms. Its taste is acrid and nauseous, and leaves a peculiar metallic and astringent flavor upon the tongue. It dissolves in twenty parts of water at 60°, and in about half its weight at 212°. It is more soluble in alcohol than in water. When heated it readily sublimes in the form of a dense white vapor, strongly affecting the nose and mouth. It dissolves without decomposition in muriatic, nitric, and sulphuric acids; the alkalis and several of the metals decompose it. It produces, with muriate of ammonia, a very soluble compound; hence a solution of sal-ammoniac is used with advantage in washing calomel, to free it from corrosive sublimate.

655. The compound commonly termed calomel (proto-chloride of mercury), was first mentioned by Crollius, early in the seventeenth century. The first directions for its preparation are given by Beguin in the Tyrocinium Chemicum, published in 1608. He calls it draco mitigatus. Several other fanciful names have been applied to it, such as aquila mitigata, manna metallorum, panchymagogum minerale, sublimatum dulce, mercurius dulcis, &c.

656. The most usual mode of preparing calomel consists in triturating two parts of corrosive sublimate with one of mercury, until the globules disappear, and the whole assumes the appearance of an homogenous gray powder, which is introduced into a matrass, placed in a sand heat, and gradually raised to redness. The calomel sublimes, mixed with a little corrosive sublimate, the greater part of which, however, being more volatile than the calomel, rises higher in the matrass; that which adheres to the calomel may be separated by reducing the whole to a

fine powder, and washing in large quantities of hot distilled water. Pure calomel in the form of a yellowish white insipid powder remains.

657. It was formerly the custom to submit calomel to very numerous sublimations, under the idea of rendering it mild; but these often tend to the production of corrosive sublimate; and the calomel of the first sublimation, especially if a little excess of mercury be found in it, is often more pure than that afforded by subsequent operations.

658. Here follows the method directed in the Pharmocopœia, for the production of calomel, which for the reasons given above we also omit.

659. It will be observed, continues Mr. B., that in these processes the operation consists in reducing the perchloride to the state of protochloride, by the addition of mercury. Various modes have, however, been adopted for the direct formation of calomel; two of these may here be noticed, of which the first is in the humid way, as devised by Scheele and Chenevix. It is as follows:—

660. Form a nitrate of mercury, by dissolving as much mercury as possible in hot nitric acid; then dissolve in boiling water a quantity of common salt, equal to half the weight of the mercury used, and render the solution sensibly sour by muriatic acid, and pour the hot nitrate of mercury into it. Wash and dry the precipitate.

661. If this process be carefully performed, and the precipitate thoroughly edulcorated, the calomel is sufficiently pure.

662. The second process, however, or that by which calomel is directly formed in the dry way, appears on the whole the least exceptionable for the production of this very important article of pharmacy. It is the method followed at Apothecaries' Hall, sanction having been obtained for its adoption from the Royal College of Physicians. Fifty pounds of mercury are boiled with seventy pounds of sulphuric acid to dryness, in a cast-iron vessel: sixty-two pounds of the dry salt are triturated with forty pounds and a half of mercury, until the globules disappear, and thirty-four pounds of common salt are then added. This mixture is submitted to heat in earthen vessels, and from ninety-five to 100 lbs. of calomel are the result. It is to be washed in large quantities of distilled water, after having been ground to fine and impalpable powder.

663. Protochloride of mercury is usually seen in the form of a white mass of a crystalline texture; and, when very slowly sublimed, it often presents regular four-sided prisms, perfectly transparent and colorless. Its specific gravity is 7·2. It is tasteless, and very nearly insoluble in water. It can scarcely be called poisonous, since in considerable doses it only proves purgative. By exposure to light it becomes brown upon its surface. If scratched it gives a yellow streak which is very characteristic, and does not belong to the perchloride. When very finely levigated it becomes of a buff color.

664. It consists of one proportional of mercury, 190 + one proportional of chlorine 33·5, and its representative number is 223·5.

665. *Native chloride of mercury*, or *mercurial horn ore*, has been found in Germany, France, and Spain, usually crystallised, and sometimes incrusting and massive. *Brande*.

666. *Iodine and mercury* unite in two proportions, forming the protiodide, which is a yellow compound, and the priodide or the deutiodide which is red. They are insoluble in water.

667. *Salts of mercury.*—Protosulphate of mercury is formed by boiling mercury in equal or double its weight of sulphuric acid. This salt requires 500 parts of water for its solution. If heated for some time to a pretty high temperature, part of its acid is expelled, and a hard gray mass is formed. When this is removed from the fire, and hot water is poured upon it, a yellowish-colored substance is formed, which was formerly called turpeth or turbith mineral, it is a super-sulphate of mercury, and a bipersulphate remains in solution.

668. *Chlorate of mercury.*—Both the oxides of mercury dissolve in chloric acid. Both the salts, when heated, give out oxygen, and are converted into per-oxide and per-chloride of mercury. *An. de Chim.* 95, 103.

669. *Cyanide of mercury.*—This may be formed by boiling one part of finely powdered red oxide of mercury, with two of Prussian blue, in eight parts of water. In this way a solution is obtained, which, if filtered while hot, deposits yellowish white crystals which are the cyanide.

670. *Nitrates of mercury.*—These are the proto-nitrate and per-nitrate. The first is formed by dissolving mercury in nitric acid, without the assistance of heat; this solution yields by evaporation the salt in question. The second is procured by using heat in the solution, and the metal thereby becomes more highly oxidated.

671. The substance commonly called red precipitate, is produced by exposing the nitrates to a heat gradually raised to upwards of 600°, nitric acid is given off, and a brilliant red substance remains, which is properly a nitro-oxide of mercury, and is thus designated in the Pharmacopœia.

672. *Fulminating mercury.*—The account of this preparation we extract verbatim from Dr. Henry's elements. 'Mercury is the base of a fulminating compound, discovered by the late Mr. E. Howard. To prepare this powder 100 grains (or a greater proportional quantity, not exceeding 500), are to be dissolved with heat in a measured ounce and half of nitric acid. The solution being poured cold upon two measured ounces of alcohol, previously introduced into any convenient glass vessel, a moderate heat is to be applied till effervescence is excited. A white fume then begins to undulate on the surface of the liquor, and the powder will be gradually precipitated on the cessation of action and re-action. The precipitate is to be immediately collected on a filter, well washed with distilled water, and cautiously dried in a heat not exceeding that of a water bath. The immediate washing of the powder is material, because it is liable to the re-action of the nitric-acid; and, while any of that acid adheres to it, it is very subject to be decomposed by the action of light. From 100 grains of mercury about 120 or 130 of the powder are obtained (see Phi-

losophical Transactions, 1800). This powder has the property of detonating loudly in a gentle heat, or by slight friction. Hence it has been proposed as a means of firing ordnance. But an accident described by professor Silliman, as having happened in his laboratory, shows that this fulminating compound explodes from such trifling causes as not to be kept without danger, even when secured from friction or heat. It has been shown from the experiments of Liebeg and Gay Lussac (An. de Ch. et de Phys. 24 and 25), that fulminating mercury owes its properties to a peculiar acid united with oxide of mercury, which may be transferred from it to alkaline and other bases, but is not obtainable in a separate state. To this acid they have given the name of fulminic.

673. *Sulphurets of mercury* are two, the one formerly called Æthiop's mineral, and the other cinnabar. The first is obtained by triturating for a length of time one part of mercury with three of sulphur, or by pouring at once mercury into melted sulphur. If the black sulphuret or Æthiops be fused together and sublimed, the red, or vermillion sulphuret is procured, which is the cinnabar of former times. Native cinnabar furnishes most of the mercury which is employed in commerce, this compound being distilled with iron filings. Æthiop's mineral is a proto-sulphuret or sulphuret; cinnabar is a bisulphuret of mercury.

674. With most of the metals mercury combines, and forms a class of compounds called amalgams; in the case of these combinations mercury loses its fluidity. It is a curious fact, that a solid amalgam of lead, mixed with one of bismuth, instantly becomes fluid.

675. Combination with mercury gives to some metals a facility of uniting with oxygen. See the word AMALGAM.

COPPER.

676. Copper is found native, and in various states of combination; the copper of commerce, too, is occasionally contaminated with other metals, as antimony, lead, and arsenic; and Berzelius states, that a small quantity of charcoal and sulphur are always found in it. Philosophical Mag. xlvii. 206. To be rendered perfectly pure it must be dissolved in muriatic acid, and into the solution a polished plate of iron is to be immersed, upon which the pure copper is precipitated. When the metal has thus been purified, it is to be washed with dilute sulphuric, or muriatic acid, and it may be fused, or kept in a divided form.

677. Copper has great malleability, ductility, and tenacity. It fuses at a dull white heat, and, if the heat be urged on, it evaporates in visible fumes.

678. The native copper is met with in different forms, massive, granular, and in crystals. It is found in Cornwall, Saxony, Siberia, Sweden, &c. It is also met with in America.

679. *Oxides of copper*.—This metal is susceptible of two degrees of oxidisement; the one combination constituting the protoxide, the other the peroxide of the metal. The first, or lowest stage of oxidisement, forms a red substance; and the second, or maximum, is black.

680. The protoxide occurs native. It may be produced artificially, by mixing metallic copper and peroxide of copper in muriatic acid. If potassa be added to this solution, a hydrated protoxide is obtained, which falls to the bottom, which is of an orange color; if quickly dried, without being subjected to oxygen, it becomes red.

681. The black, or peroxide, is procured by precipitating nitrate of copper with carbonate of potass. A simple ignition of the nitrate will produce it.

682. *Chlorine with copper*.—Copper is acted on forcibly by gaseous chlorine, and, when these materials are treated together, two compounds are simultaneously produced, the proto-chloride and per-chloride of copper. The first of these compounds was called resin of copper by Boyle. It is insoluble in water, but soluble in muriatic acid; the color of it is dark brown, but it acquires a green hue by exposure to the air. This substance remains in the retort after the distillation of a mixture of two parts of corrosive sublimate (bi-chloride of mercury) and one of copper filings.

683. The per-chloride may be produced by dissolving peroxide of copper in muriatic acid, and evaporating to dryness at a heat below 400°. This compound is of a yellow color, but dissolved in water it becomes eventually green.

684. *An iodide of copper* may be precipitated from solutions of the metal, by hydriodic acid. This substance is brown and insoluble.

685. *Salts of copper*.—Muriatic acid does not act readily on metallic copper; but it freely dissolves the peroxide, and thus forms the per-muriate. A proto-muriate is also obtained by digesting copper filings with the peroxide of the metal in muriatic acid. A native submuriate of copper is found in Chili and Peru; and 'it is a submuriate of copper that is formed by the destructive action of sea-water upon the copper sheathing of ships, the oxygen necessary to the formation of the muriate being derived from the air of the atmosphere. Now, according to the views of Sir H. Davy, copper can only act upon sea-water when in a positive state, and that philosopher was therefore led to conceive, that if the electric state of the copper were reversed, by bringing it into contact with some metal of more energetic electrical power, the action of the sea-water would cease. Philosophical Transactions, 1824. This led him to a discovery which promises to be most important in its practical consequences, viz. that extensive surfaces of copper may be completely protected from the corroding effects of sea-water, by placing comparatively small quantities of malleable or cast iron, in contact with the copper sheathing of a ship; and it has been found that the covering of vessels so protected is uninjured, even by long voyages, in tropical countries. This discovery has been applied by Dr. Bostock to the protection of utensils employed for culinary purposes.' *An. of Philos.* viii. p. 76. *Henry*.

686. *Chlorate of copper* is formed by dissolving peroxide of copper in chloric acid. This salt is of a bluish-green color, not easily crytallised, and is deliquescent,

687. *Iodate of copper* is procured by precipitation from solutions of copper, by means of the iodate of potassa or other alkaline iodates.

688. *Nitrate of copper* is obtained by direct solution of the metal in dilute nitric acid; and a sub-nitrate is obtainable by adding a small portion of alkali to the solution of the nitrate. 'There appears to be no proto-nitrate of copper, for protoxide of copper, digested in very dilute nitric acid, is resolved into peroxide, which dissolves, and into metallic copper. Potassa forms in solution a bulky blue precipitate of hydrated peroxide of copper, which, when boiled in potassa or soda, becomes black from the loss of its combined water. *Brande.*

689. If peroxide of copper be dissolved in ammonia, a bright blue liquid will be produced, from which blue crystals may be procured by evaporation, and these constitute the ammoniaret of copper, or cuprate of ammonia.

690. *Sulphates of copper.*—The blue salt which is formed by digesting strong sulphuric acid with copper is a sulphate; but it is better to use the oxide of the metal for the preparation, otherwise, part of the sulphuric acid being decomposed, and furnishing oxygen to the metal, it is dissolved. The sulphate, or persulphate of copper, is a regularly crystallised salt, which has been called blue vitriol, or Roman vitriol. Upon a large scale this salt is formed by exposing to the air and moisture a sulphuret of copper. This preparation is the salt of Venus of the alchemists.

691. *A sub-sulphate of copper* may be formed by adding potassa or ammonia carefully to a solution of the sulphate; and Dr. Thomson has recently described a quadri-sulphate, consisting of 1 atom of base + 4 atoms of acid.

692. *Sulphite of copper* may be obtained by passing sulphurous acid gas into a vessel containing water and oxide of copper. See *An. de Chim.* 83.

693. Phosphoric acid unites with the oxide of copper in two proportions, viz. into a bi-phosphate and phosphate. The latter has been found in a native state near Cologne.

694. *Carbonate of copper* is formed by exposing the metal to a damp air; and it may be produced by adding alkalis, in their carbonated state, to solutions of copper. There is a fine blue preparation of copper, which is called verditer, and principally used by silver-refiners; this is formed by adding carbonate of lime to the nitrate of copper.

695. *Native carbonate of copper* is met with of a green and of a blue color; the first (malachite) is found in Siberia, it has been met with in Cornwall. The blue carbonate is found in Bohemia, and near Lyons, &c. One variety of this is sometimes called the mountain blue.

696. *Verdigris* is an acetate of copper; by the solution of this substance in distilled vinegar, a binacetate is formed. A sub-acetate is procurable by acting on verdigris with water. Berzelius speaks of other proportionals of acetic acid with oxide of copper, *An. of Phil. N. S.* 8. 188.

697. *A ferro-cyanate of copper* is obtained by adding ferro-cyanate of potassa to a dilute solution of sulphate or nitrate of copper, or to the muriate of the metal. This substance has been recommended by Mr. Hatchett to be used as a brown pigment.

698. *Sulphuret of copper* exists native in two forms; the one is black and is capable of being artificially formed by melting in a glass tube three parts of iron filings with one part of sulphur. The other is a bi-sulphuret, which forms the ore of copper called pyrites.

699. *Phosphorus* and copper unite by fusion, and form a phosphuret which is of a grayish-white color.

700. On the *alloys of copper*, as some of them are important, we shall extract some paragraphs from Mr. Brande's Manual. With gold it forms a fine yellow ductile compound, used for coin and ornamental work. Sterling or standard gold consists of 11 gold + 1 copper. The specific gravity of this alloy is 17·157. With silver it forms a white compound, used for plate and coin. Lead and copper require a high red heat for union; the alloy is gray and brittle.

701. Brass is an alloy of copper and zinc. The metals are usually united by mixing granulated copper with calamine and charcoal; the mixture is exposed to heat sufficient to reduce the calamine and melt the alloy, which is then cast into plates. The relative proportion of the two metals varies in the different kinds of brass; there is usually from twelve to eighteen per cent. of zinc. Brass is very malleable and ductile when cold; and its color, and little liability to rust, recommend it in preference to copper for many purposes of the arts. According to M. Sage a very beautiful brass may be made by mixing fifty grains of oxide of copper, 100 of calamine, 400 of black flux, and thirty of charcoal powder; melt these in a crucible till the blue flame is no longer seen round the cover, and, when cold, a button of brass is found at the bottom, of a golden color and weighing one-sixth more than the pure copper, obtained from the above quantity of oxide.

702. The analysis of brass may be performed by solution in nitric acid; add considerable excess of solution of potass and boil, which will dissolve the oxide of zinc and leave that of copper, wash the latter, and dry, and heat to redness; 125 parts indicate 100 of copper. The zinc in the filtered alkaline solution may be precipitated by carbonate of soda, having previously added a small excess of muriatic acid; wash this precipitate, dry it, and expose it to a red heat; it is then oxide of zinc, 123 parts of which, indicate 100 of the metal.

703. *Tutaneg* is said to be an alloy of copper, zinc, and a little iron; and tombac, Dutch gold, similor, Prince Rupert's metal, and pinchback are alloys, containing more copper than exists in brass, and consequently made by fusing various proportions of copper with brass. According to Wiegleb, manheim gold consists of three parts of copper, and one of zinc. A little tin is sometimes added, which, though it may improve the color, impairs the malleability of the alloy.

704. *Speculum metal* is an alloy of copper and tin, with a little arsenic; about 6 copper, 2 tin, 1 arsenic. On this subject the reader is referred to Mr. Edwards' experiments (Nicholson's Journal 4to. iii.) Bell-metal and bronze are alloys of

copper and tin; they are harder, and more fusible, but less malleable than copper; the former consist of three parts of copper and one of tin; the latter from eight to twelve of tin with 100 of copper. A little zinc is added to small shrill bells.

705. Vessels of copper used for culinary purposes are usually coated with tin, to prevent the food from being contaminated with copper. Their interior surface is first cleaned, then rubbed over with sal-ammoniac. The vessel is then heated, a little pitch spread over the surface, and a bit of tin rubbed over it, which instantly unites with and covers the copper. *Brande.*

706. Respecting the alloys of copper much valuable information may be found in the 4th volume of Bishop Watson's Chemical Essays, and in Aikin's Dictionary of Chemistry, article BRASS &c. From a recent investigation of them Mr. Dalton finds that in all alloys of copper which are characterised by useful properties, the ingredients enter in atomic proportions; and it is probable that by attention to these proportions, the manufacture of the artificial alloys may be greatly improved.

707. Most of the copper of commerce is obtained from copper pyrites, or yellow copper ore, which is a compound of sulphur, iron, and copper, in such proportions, as render it probable that it is composed of two atoms of proto-sulphuret of iron, and one atom of per-sulphuret of copper, with a little arsenic and earthy matter (An. of Philos. N. S. lxxxiii. p. 301). The sulphur and arsenic are separated by roasting, and the copper is obtained by repeated fusions, in one of which an addition of charcoal is made. *Henry.*

IRON.

708. Iron, although not so malleable as gold and silver, is still more ductile than either of them. This metal exists in such abundance that few fossils are entirely free from it. Iron is of a bluish-white color, and is susceptible of very high polish. It is considered by many as of meteoric origin, and indeed, masses of native iron have been seen to fall from the atmosphere. It is one of the most infusible of the metals.

709. *Iron and oxygen.*—The rusting of iron from exposure to a moist atmosphere, is, in fact, the combination of it with oxygen. It combines with this principle in at least two proportions, forming protoxide and peroxide. The protoxide may be artificially made by precipitating a solution of sulphate of iron with potassa, washing and evaporating it. It is black; Gay Lussac has supposed that in drying, an additional proportion of oxygen is absorbed, and thus that a deutoxide of the metal is formed. Mr. Brande says there is some reason to doubt the accuracy of this conclusion.

710. Protoxide of iron may be obtained by burning iron in oxygen gas; this process forms a beautiful experiment, it was first described by Dr. Ingenhous.

711. When this protoxide is boiled in nitric acid, and precipitated by ammonia, then washed dried and calcined, it is converted into a reddish or brown oxide. This is the peroxide of the metal.

712. Corresponding with these two oxides of iron, there appear to be two hydrates, or hydro-oxides, obtainable by precipitating the acid solutions by a fixed alkali. It is, however, difficult to obtain a pure hydrate of iron, on account of the facility with which it parts with water.

713. The *native oxides of iron*, says Mr Brande, constitute a very extensive and important class of metallic ores. They vary in color, depending upon mere texture in some cases; in others upon the degree of oxidisement. Some varieties are magnetic, and those which contain the least oxygen are attracted by the magnet.

714. *Magnetic iron ore* is generally black, with a slight metallic lustre. It occurs massive and octahedral. It is often sufficiently magnetic to take up a needle. It occurs chiefly in primitive countries, and is very abundant at Roslagen in Sweden, where it is manufactured into a bar-iron particularly esteemed for making steel.

715. Another variety of oxide of iron is called iron glance, and micaceous iron ore. It is found crystallised, of singular beauty, in the isle of Elba, and occasionally among the volcanic products of Vesuvius, and the Lipari islands.

716. A third variety is hæmatite or red iron stone; it occurs in globular and stalactitic masses, having a fibrous and diverging structure. In this country it abounds near Ulverstone in Lancashire; and most of our iron plate and wire is made from it. Sometimes it is of a brown, black, or ochraceous color.

717. A fourth variety of oxide of iron is known under the name of clay iron stone, on account of the quantity of argillaceous earth with which it is contaminated. It is found in masses of different shapes and sizes, and sometimes in small round nodules like peas. Some of the globular masses are called ætites. It is abundant in the coal formations of Shropshire, South Wales, Staffordshire, and Scotland.

718. Though this is far from being the purest iron ore found in this country, it is the chief source of the cast and bar iron in ordinary use. Its employment is chiefly referrible to the coal which accompanies it.

719. The essential part of the process by which these ores of iron are reduced, consists in decomposing them by the action of charcoal at high temperatures. The argillaceous iron of Wales, Shropshire, &c. is first roasted and then smelted with lime-stone and coke; the use of the former being to produce a fusible compound with the clay of the ore, by which the latter is enabled to act upon the oxide, and to reduce it to the metallic state. *Brande.*

720. *Chlorine and iron* unite in two proportions, forming the proto-chloride, and the perchloride; these products have not been much examined.

721. *Iodine* also unites with iron into a brown fusible compound, which is an iodide of the metal, and which, when acted upon by water, becomes a hydriodate of a green color.

722. *Sulphur and iron.*—There is a proto-sulphuret and a bi-sulphuret of iron, the latter of which is exclusively a natural product, and is found abundantly; it is called iron-pyrites. The former may be prepared by melting iron filings

and sulphur together, this is also found native, but it is distinguishable from the bi-sulphuret by its black color and by its being magnetic, it is called indeed magnetic pyrites, to distinguish it from the common pyrite or yellow sulphuret. The magnetic pyrite is found to contain just half the sulphur which exists in the other.

723. *Carbon and iron.*—With carbon, iron unites in various proportions, and a great difference is found in the properties of these compounds, according to the proportion of their ingredients. On these varieties, indeed, together with an occasional union of a small quantity of oxygen, depend the different kinds and qualities of the metal found in commerce, and employed in the arts.

724. There can scarcely, says Dr. Henry, be a more striking example of essential differences in external and physical characters being produced by slight differences in chemical composition, than in the carburets of iron, for steel owes its properties to not more than from $\frac{1}{80}$ to $\frac{1}{150}$th its weight of carbon. This appears to be the only addition necessary to convert iron into steel; for, though it is proved that the best steel is made from iron which has been procured from ores containing manganese, yet careful and skilful analysis discovers no manganese in steel. *An. de Chim. et de Phys.* tom. 32.

725. *Steel* is a compound, then, of iron and carbon, the proportions being variable; and the latter metal is converted into the former by a process which is called cementing, and which consists of heating bar-iron in contact with charcoal. We should say that what is called cast or crude iron contains oxygen and the base of silica, besides incidental admixtures; of this there are two species, the one containing more, the other less of carbon. By the process of puddling, as it is called (for an account of which see the eighty-first volume of the Philosophical Transactions), cast iron becomes converted into malleable, in other words it is made purer; and it is now called bar-iron, which is used, as we have just stated, for the formation of steel. By combining a still larger quantity of carbon with the bar iron, the fine cast-steel is procured; so that steel, though, like cast-iron, it is combined with carbon, most essentially differs from iron, by being without oxygen, silex, and other matters.

726. *Plumbago* is another carburet of iron; this is used for black lead pencils, and for covering iron in order to prevent rust. Iron unites with various metals in alloy.

727. *Salts of iron.*—Copperas, or green vitriol as it has been called, is a sulphate of iron. It is usually formed by dissolving iron filings in dilute sulphuric acid. When in solution this salt absorbs nitric oxide gas, and acquires a brown color: it also unites with chlorine, muriatic acid becomes formed, and in this case the water of solution becomes decomposed.

728. By exposure to air, or if treated with nitric acid, it is converted from a proto-sulphate into a per-sulphate. Sulphuric acid used to be formed from this salt by expelling it with heat; and when thus treated a peroxide of iron remained in the vessel. This residue was known under the appellation of colcothar or caput mortuum vitrioli.

729. This salt (the green vitriol) occurs native in several of the coal mines of this country; it is usually combined with pyrites.

730. *Muriate of iron* is formed by dissolving iron filings in muriatic acid. The proto-muriate is in crystals of a green color, the per-muriate is of a reddish brown. It is this last which is used in the preparation of the Pharmacopœia called tinctura ferri muriatis.

731. *Nitrate of iron*—The nitric acid acting upon iron produces also the green or proto-nitrate, in which the oxide is at the minimum of oxidation, and the red or per-nitrate, in which it is at the maximum.

732. *Carbonic acid* unites with the protoxide of iron, and forms a proto-carbonate

733. *Ferro-cyanate of iron or Prussian blue.*—We shall give an account of this substance in a distinct article. Here we shall confine ourselves to extracting the following remarks from Dr. Henry, respecting its nature and properties:—

734. 'Respecting the nature of Prussian blue a variety of opinions have been entertained, and it is still a subject on which chemists are by no means agreed. No theory respecting it can be entitled to notice that was anterior to Gay Lussac's discovery of cyanogen. His researches led him to believe that Prussian blue is a compound of cyanogen with metallic iron, and it is therefore not a prussiate but a cyanide; but Vauquelin, having directed his attention to this part of the subject, was still induced to regard it as a true prussiate. According to Mr. Porrett's view, it is a compound of ferro-cyanic acid with peroxide of iron. Berzelius, not admitting the existence of any such acid as the ferro-cyanic, regards Prussian blue as a compound of hydrocyanate of protoxide of iron with peroxide of iron, in proportions admitting of some variations (An. of Phil. N. S. 1. 444). Robiquet, on the other hand, considers it as a cyanide of iron combined with a ferro-cyanate of the peroxide and with water (An. de Chim. et Phys. 12 and 17). The subject, in its present state, appears to me very obscure, and I refer the reader, who is disposed to examine it, to the papers of Berzelius and Robiquet already quoted.'

For an account of the combination of iron with the gallic acid and tan, see the article INK in this Encyclopædia.

735. *Acetate of iron.*—This combination may also, like the other salts of the metal, exist in two different states; it is a per-acetate of iron, which is much used in dyeing and calico-printing, see DYEING.

736. *Proto-phosphate of iron* may be formed by adding solution of phosphate of soda to the proto-sulphate of iron; and the per-phosphate by adding the same solution to the per-sulphate of iron.

737. The proto-phosphate is found native, both in the form of a blue powder and in prismatic crystals. It has been improperly named native Prussian blue.

738. Iron unites with many other metals in the way of alloy.

TIN.

739. The principal ore of this metal is the native oxide. The pure metal is obtained by heating this ore with charcoal. Tin, in its metallic state, has a silvery white color: it is malleable, though not very ductile. At a temperature of 442° it melts, and becomes gradually converted into a grayish powder. Several varieties of tin are met with in commerce, for the discrimination of which, and the means of judging their purity, Vauquelin has given useful instructions in the 77th volume of the Annales de Chimie; and an interesting account of the ores of tin, and of the processes for extracting the metal in Cornwall, has been given by Mr. Taylor, in the 5th volume of the Geological Society's Transactions.

740. *Tin and oxygen.*—Two oxides of tin are procurable—the protoxide and the peroxide; the first being obtained by precipitating protomuriate of tin by ammonia; and the peroxide is formed by treating the metal with nitric acid; it may also be procured by throwing nitre, in sufficient quantities, upon red-hot tin, or heating tin filings with red oxide of mercury.

741. The oxides of tin dissolve in the alkalis; they have indeed, in a certain degree, the properties of acids.

742. *Native oxide of tin* is met with in Cornwall, in Spain, and in Saxony. It has also been found in France, in the Indies, and in South America.

743. *Chloride of tin* may be formed by heating together an amalgam of tin and chlorine, or by distilling a mixture of eight ounces of powdered tin and twenty-four ounces of the chloride of mercury; in this last way a perchloride of tin is formed, while the first process produces the proto-chloride.

744. *Iodide of tin* may either be formed by the direct combination of iodine with the metal, or by adding hydriodic acid to a solution of the muriate. The proportion of its elements has not been ascertained.

745. *Sulphuret of tin.*—There are two of these compounds—the sulphuret and the bi-sulphuret; the first obtainable by directly heating the metal with sulphur, the second, which has been named aurum musivum, formed by heating the oxide often with an equal weight of sulphur.

746. *Phosphuret of tin* may be obtained by dropping phosphorus into the melted metal.

SALTS OF TIN.

747. *Sulphate of tin* is formed by boiling the metal in sulphuric acid; the solution deposits the salt in the form of white needle-shaped crystals.

748. *Nitrate of tin* may be procured by acting upon the metal by diluted nitric acid; it is necessary that the acid be diluted, and, in the formation of the compound, part of the water, as well as of the acid, is decomposed.

749. *Muriate of tin.*—We have a proto-muriate and a permuriate of this metal; the first obtained by heating one part of tin with two of muriatic acid. This constitutes the sal Jovis of the ancient chemists. The permuriate may be procured by dissolving the metal in nitro-muriatic acid.

750. *Chlorate of tin* has not hitherto been subjected to examination. Neither has the iodate.

751. *Acetate of tin* is formed by digesting tin filings with the acetic acid: this salt is decomposed by mere exposure to the air.

752. *Phosphate of tin* may be formed by adding phosphate of soda to the solutions of the metal.

753. *Carbonate of tin* is procured by adding carbonate of potass to the proto-muriate of the metal.

754. Tin forms alloys with many of the metals. Pewter is an alloy of this metal with antimony, copper, and bismuth; the less pure form of pewter has a considerable admixture of lead. Equal parts of tin and lead formed into an alloy constitutes the plumbers' solder. Into the composition of bronze, and bell-metal, tin also enters. An amalgam of tin and mercury is employed for the backs of looking-glasses. Iron plates are coated by tin, by dipping them into the melted metal.

LEAD.

755. The pure metal is principally obtained from the native sulphuret, but its natural compounds are very numerous.

756. Lead, when freed from its admixture, is of a bluish-white color; at first it has considerable lustre, but it soon tarnishes, especially when exposed to a very moist atmosphere. It is considerably malleable, but has much less tenacity than several other metals. Its melting point is about 600°, and when ignited with oxygen it throws off yellowish fumes, which are an oxide of the metal.

757. *Lead and oxygen.*—There are three oxides of lead—the protoxide, the deutoxide, and the peroxide. The first may be obtained by heating nitrate of lead, or by decomposing it with carbonate of soda. This oxide is insipid, and insoluble in water: it is of a pale yellow color. It is known in commerce by the name of massicot, and when vitrified it forms the litharge of the shops. The deutoxide is known by the name of minium or red lead. It is obtained by exposing the protoxide to heat and oxygen; and the peroxide is procured by subjecting the deutoxide to nitric acid in the way of digestion; the product being one part protoxide and the other the peroxide, which is a brown insoluble substance, and when heated is converted, by parting with oxygen, into the yellow oxide. This last, when precipitated by the alkalis, forms a hydrate of lead.

758. The oxides of lead give up part of their oxygen on the application of heat. When distilled in an earthen retort they afford oxygen gas; and still more readily when distilled with concentrated sulphuric acid. They are completely reduced by being ignited with combustible matter. Thus, when a mixture of red oxide of lead and charcoal is ignited in a crucible, a button of metallic lead will be found at the bottom of the vessel. Mere trituration of the peroxide in a mortar with a little sulphur, and the

acid; and through the solution a current of sulphureted hydrogen gas be directed. The precipitate must be well washed, dissolved in concentrated muriatic acid, and the excess of acid dissipated by evaporation. What remains must be dissolved in water and precipitated by carbonate of ammonia, which must be supplied in excess. In this way we obtain a carbonate of the metal, and the carbonic acid may be expelled from it, by a proper application of heat.

787. Cadmium closely resembles tin, both in its appearance and properties; it however surpasses it in tenacity, and is somewhat harder. It is very ductile. It is not more readily acted on by simple exposure to air than is tin, but when heated it forms an orange-colored oxide, which is easily reducible.

788. *Oxide of cadmium* is soluble in pure ammonia, but not in its carbonates; with sulphureted hydrogen a yellow precipitate is formed from its solutions, and zinc will throw down from it metallic cadmium.

789. *Sulphate, nitrate, chloride, iodide, carbonate*, and *phosphate of cadmium* have all been found, but have not hitherto been examined in such sort as to make them be considered as accurate results, or compounds of much interest.

790. The metal too unites with sulphur so as to form a sulphuret, and with phosphorus to constitute a phosphuret.

Zinc.

791. The zinc of commerce is never pure, but contains sulphur, charcoal, lead, and sometimes copper, iron, and a small portion of arsenic and manganese. The common zinc of commerce is called speltre. The metal may be purified by dissolving this speltre in diluted sulphuric acid, and immersing a plate of zinc into the solution, which throws down the other metals that the solution contains; the clear solution must then be decomposed by sub-carbonate of potass, and the precipitate, after being well washed, ignited with charcoal.

792. Zinc is of a white color, with a tincture of blue. It is malleable under a due degree of heat (see Philos. Mag. 23). It is also somewhat ductile. It is fusible at about 680° and the mass upon cooling assumes a crystalline form.

793. *Oxide of zinc.*—This is obtained by heating the metal in air. At a red heat it burns with a bright flame, and is converted into what has been called flowers of zinc, which is an oxide, white, insipid, and soluble in the alkalis. If in this state it be again subjected to a violent heat it fuses into a glass. The same oxide may be obtained, and in a greater degree of purity, by adding ammonia to a solution of sulphate of zinc, the precipitate being washed and dried. This is the only known oxide of zinc, however it may be procured. See Thomson's Annals, p. 33. Zinc may be oxidised by being boiled with pure alkaline solutions; and from all the salts of zinc the alkalis precipitate a hydrated oxide.

794. *Chloride of zinc* is obtained either by evaporating the muriate of the metal or by heating leaf zinc in chlorine. There is only one known combination of zinc with chlorine; it was formerly called butter of zinc; it is a fusible compound, and by the action of water produces a muriate of zinc. It should be observed that the attraction of zinc for chlorine is very powerful.

795. Iodine likewise combines with zinc, and produces a fusible and volatile compound, deliquescent when exposed to the air, and crystalline. This iodide of zinc becomes when it deliquesces a hydriodate.

796. *Zinc and sulphur.*—Sulphuret of zinc is formed by heating the oxide of the metal with sulphur. This composition exists native under the name of blende. When formed artificially sulphuret of zinc is a yellowish-brown mass, but blende is a brittle soft mineral, differently shaded with brown and black. It is called by the miners black-jack.

797. Water impregnated with sulphureted hydrogen decomposes after some time the solutions of zinc, and forms a yellowish-white precipitate, which is probably a hydro-sulphuret.

798. *Phosphureted zinc* is a whitish or lead color compound, and has a metallic lustre somewhat like lead. It is in some measure malleable. When subjected to a very high temperature it burns like zinc.

Salts of Zinc.

799. *Sulphate of zinc.*—Diluted sulphuric acid readily oxidises and eventually dissolves the metal, giving off hydrogen, and leaving a sulphate of zinc, which shoots into regular crystals. The white vitriol of commerce is a sulphate of zinc, which is either procured by a further evaporation than is necessary for the crystalline formation, or prepared from the native sulphuret. This salt is found native at Holywell in Flintshire.

800. *Sulphite of zinc* is obtained by dissolving the metal in sulphurous acid. And hypo-sulphite is procured with the same acid by digestion, and after evaporation dissolving the produce in alcohol and re-crystallising it.

801. *Nitrate of zinc* is a very deliquescent salt; it crystallises from solution of the metal in nitric acid.

802. *The muriate of zinc*, formed in the same manner with muriatic acid, does not crystallise. During the solution hydrogen gas of great purity is evolved. Indeed this is a common form of procuring hydrogen. When the muriate is heated in the air it loses muriatic acid and becomes mere oxide of zinc; in a close vessel it parts with water and the residue is a chloride of zinc.

803. *Iodate of zinc* is formed by adding iodate of potassa to a solution of sulphate of zinc.

804. *Hydriodate of zinc* is formed by iodide of zinc attracting moisture from the air.

805. *Phosphate of zinc* may be obtained by dissolving zinc in phosphoric acid, or by decomposing sulphate of zinc with phosphate of soda. Dr. Thomson formed a bi-phosphate of this metal.

806. *Carbonate of zinc*, in its native form, constitutes the principal portion of the mineral called calamine. Artificially the carbonate is

procured, by adding carbonate of potassa to sulphate of zinc.

807. *Acetate of zinc* may either be formed by dissolving the white oxide in acetic acid, or by mixing the solutions of acetate of lead and sulphate of zinc. This by evaporation affords beautiful crystals.

808. *Ferro-cyanate of zinc* is a yellowish-white precipitate, produced by adding ferro-cyanite of potassa to sulphate of zinc.

809. Zinc forms alloys with most of the other metals.

Bismuth.

810. Native bismuth has been met with in the western extremity of Britain, and also in Germany, France, and Sweden. It is a brittle white metal with a tint of red; it fuses at 476°, and by slow cooling forms very distinct crystals.

811. The metal may be obtained pure by dissolving the bismuth of commerce in nitric acid, then decomposing the nitrate by water, which separates an oxide of bismuth, that may be reduced to a metallic state by heating it with black flux.

812. *Oxide of bismuth* is to be obtained by exposing the metal to heat and air, a fusible white oxide is thus formed, which burns with brilliancy; if the heat be increased under free exposure to air, an abundance of yellow smoke is thus produced, which when subjected to a lower temperature condenses in the form of a yellowish-white sublimate.

813. This oxide of bismuth has been found native, but it occurs rarely.

814. *Chloride of bismuth* is procured by introducing the metal very finely divided into chlorine gas, or by evaporating the muriate of bismuth to dryness; the salt thus obtained, after sublimation, deliquesces into a material which was formerly called butter of bismuth.

815. *Iodide of bismuth* is obtained by heating iodine with the metal. This product is of an orange color, and insoluble in water. If hydriodic acid, or hydriodate of potassa be added to nitrate of bismuth, a precipitate is procured of a chocolate-brown color.

816. *Sulphuret of bismuth* is of a bluish-gray color, with a metallic lustre. It is produced by the direct combination of sulphur with the metal, but it is found, though rarely, native.

817. *Salts of bismuth.*—The sulphate is a white compound, formed by the action of sulphuric acid on the metal; it is not soluble in, but is decomposed by, water, from the action of which it is changed into a sub-sulphate and super-sulphate.

818. *Nitrate of bismuth.*—This salt is formed by dissolving the metal in two parts of nitric acid and one of water, by which nitric oxide is evolved. If water be made to decompose this solution, a white substance is thrown down, which has been called pearl white, or magistery of bismuth. This substance has been introduced into the Pharmacopœia under the name of sub-nitrate of bismuth, and is an excellent medicine in some morbid conditions of the stomach. See MEDICINE.

819. *An acetate of bismuth* may be used as a white sympathetic ink; the nitrate will answer the same purpose on this as corrosive. Characters thus written are invisible when dry, but become legible on being immersed in water; exposure of them to sulphureted hydrogen turns them black.

820. The principal use of bismuth in the arts is in the formation of soft solders, which are fusible alloys with other metals. Gold is deprived of its ductility when combined with bismuth, even in very small quantities; it also occasions silver and platinum to be brittle.

Antimony.

821. The principal ore of this metal is its sulphuret. For the purpose of obtaining it in its metallic state, the native sulphuret is to be mixed, in the proportion of three parts to two, with crude tartar (the bi-tartrate of potass); to this may be added one-third of nitrate of potass, and the mixture is to be thrown by spoonfuls into a red-hot crucible; at the bottom of the crucible the metal will form; in this state it is met with in commerce, and it is nearly pure; but for its complete purification it is to be dissolved in nitro-muriatic acid, and the solution poured into water; a white powder will now be precipitated, which must be washed, mixed with double its weight of tartar, and exposed to a dull red heat in a crucible, the product is the pure metal.

822. Another method of reducing the ore of antimony is to fuse it in a covered vessel, with half its weight of iron-filings, adding, when the mass has been brought to a state of fusion, a fourth part of nitrate of potassa.

823. Antimony is of a silvery-white color; it is very brittle, and in its ordinary texture it is crystalline. Its fusible point is about 810°, and at a high heat it is volatile.

824. *Antimony and oxygen.*—Mere exposure to the air causes but little change in antimony at the ordinary temperature of the atmosphere, but when the heat is raised so as to fuse the metal, white fumes are emitted, which is the metal in combination with oxygen.

825. Proust says that all the oxides of antimony may be reduced to two, as far as their atomic proportions are concerned; but Berzelius has contended for at least three definite compounds of this metal with oxygen. The first is to be obtained by pouring muriate of antimony into water; washing the precipitate with a weak solution of potassa, and afterwards with water; then drying it; or by boiling to dryness 200 parts of sulphuric acid with fifty parts of powdered metallic antimony, the residue being washed first in a weak solution of carbonate of potassa, and then with water. This forms the protoxide of antimony, and it appears, says Dr. Henry, to be the only oxide of antimony which is capable of acting as a true base with acids, and is that which gives activity to the principal medicinal preparations of that metal.

826. For the mode of preparing this oxide, as directed in the Pharmacopœia, we refer to the article PHARMACY.

827. Berzelius directs for the formation of the second or white oxide, that metallic antimony be dissolved in nitric acid, and the product be subjected to heat; or that the metal be dissolved

in nitro-muriatic acid, decomposed by water, and the precipitate first washed, and then calcined in a platinum crucible.

828. The third or yellow oxide is to be obtained by mixing nitre and metallic antimony, or the protoxide of the metal, and fusing them. The residue afterwards being mixed with nitric acid, a white precipitate is formed which becomes yellow upon being heated. This is the peroxide of the metal; which is precipitated from its combinations in the form of a white hydrate.

829. The white and yellow oxides are, strictly speaking, acids, and they have been called antimonious and antimonic acids; or by Berzelius, the stibious and stibic acids, from the Latin appellative of the metal, stibium.

830. *Chloride of antimony.*—This was formerly known under the name of butter of antimony. It may be formed by distilling together one part of powdered antimony with two and a half of corrosive sublimate. This composition is a soft solid under the ordinary temperature of the air, but it becomes liquid on being exposed to a high heat, and in cooling crystallises. If water be added to the chloride of antimony, a hydrated protoxide of antimony is formed (this used to be called Algaroth powder, or mercurius vitæ), with this also muriatic acid is generated, which may be taken up by potassa, and the oxide remains pure.

831. *Iodide of antimony* is of a dark red color; when acted on by water hydriodic acid and oxide of the metal are produced. In the Quarterly Journal, xviii. page 397, a compound of antimony, iodine, and sulphur, is mentioned, containing a proportional of each ingredient.

832. *Sulphuret of antimony* is easily formed by combining the metal with sulphur. The artificial very closely resembles the natural sulphuret. When this is exposed to a dull red heat oxygen is gradually absorbed, and the metal becomes converted into a gray oxide. If to this a strong heat be applied, the substance fuses into a glassy matter which was formerly called glass of antimony, which is a compound of protoxide with about 10 or 15 per cent. of sulphuret: together with these ingredients there is usually also a little silex. If the sulphuret have its proportion to the oxide increased, an opaque compound is formed, of a reddish or yellowish color, which has been named saffron of antimony. With a still larger proportion of the sulphuret we obtain the liver of antimony.

833. *Hydro-sulphureted oxide of antimony.* This compound is usually prepared by fusing equal parts of sulphuret of antimony and potassa; it was long known under the name of Kermes mineral. The liquor is to be filtered while hot, and it is during the cooling that the kermes is deposited. If to the solution when cold, dilute sulphuric acid be added, a red precipitate falls down, which, when washed and dried, is the golden sulphur of antimony of former times, now called in the London Pharmacopœia the precipitated sulphuret of antimony. This only differs from the kermes in containing a larger quantity of sulphureted hydrogen, it is a sulphureted hydro-sulphuret.

834. *Salts of antimony.*—When antimony is heated with sulphuric acid, the acid is decomposed, the metal is oxidised, and a sub-sulphate is produced.

835. Nitric acid acts with much power on antimony, even to the extent, under some circumstances, of inflammation. In this case ammonia is produced by the vehement decomposition of the acid, and the metal becomes peroxidised. 'The most convenient solvent of antimony is the nitro-muriatic acid, which acts upon the metal both in a separate state and as it exists in the black sulphuret. Muriatic acid acts on the latter compound, and evolves sulphureted hydrogen gas in abundance and of great purity, and muriate of ammonia is also formed, and remains in solution along with the muriate of antimony.' *Berzelius, Ann. de Chim. et de Phys.* xvi.

836. The celebrated preparation called James's Powder, according to the analysis of Dr. Pearson (Phil. Trans. 1791), consists of 43 parts phosphate of lime and 57 protoxide of antimony; but of this, and its imitation by the London College of Physicians, in the Pulvis Antimonialis, as well as the Tartarised Antimony or Tartar emetic, which is a compound of protoxide of antimony, potassa, and tartaric acid, we shall have to enlarge in the article PHARMACY.

837. Antimony forms an alloy with most of the other metals; one of the most important of the alloys of antimony is that which it forms with lead. The metal for printers' types is a compound of antimony and lead, in the proportion of one part of the former to sixteen of the latter.

MANGANESE.

838. Native manganese is not the metal in its metallic state, but is an impure oxide of it. It may be obtained pure (that is the oxide) by heating the black peroxide with muriate of ammonia. Chlorine is disengaged from this mixture; this chlorine attaches itself to the manganese, and when water is added a pure solution of muriate of manganese is obtained by filter. From this solution bi-carbonate of potassa precipitates a pure carbonate, from which the carbonic acid may be expelled by heat (Quarterly Journal vi. 358). Mr. Hatchet has shown that if iron be present in solution with muriatic acid, it may easily be thrown down by ammonia. The oxide thus produced may be resolved into a metallic state by heating it with charcoal.

839. Manganese is of a dusky white color, it is very brittle, and when broken has a bright shining appearance. It is very difficult of fusion, and soon becomes an oxide by exposure to air.

840. *Oxides of manganese.*—A green, a brown, and a black oxide of this metal have been described. Berzelius, indeed, speaks of five distinct oxides of manganese, but Gay Lussac can only satisfy himself of the existence of three, viz. 1st. the protoxide obtained by dissolving manganese in diluted sulphuric acid, and precipitating it by a pure alkali out of the contact of air; 2d. the deutoxide which remains after calcining the peroxide, or the greater part of the salts of manganese; and 3d. the peroxide, or native black oxide.

841. When a solution of the first of these the

protoxide, is treated with the alkalis, a white precipitate is produced, which is a hydrated oxide of the metal.

842. There seems, however, to be much difference of opinion with respect to the modes and degrees in which oxygen unites with manganese, and we refer the reader for a full statement of these differences to the last edition of *Dr. Henry's Elements.*

843. The peroxide of manganese is black; it is insoluble in acids, and, as we have observed, is found native in abundance. The color of the deutoxide is either brownish-black, or shining black, according to the mode of its preparation. The protoxide is at first of a brown color, but eventually changes to a beautiful light green. Exposure, however, to the air soon again changes it.

844. *Manganese and chlorine.*—Chloride of manganese may be formed by evaporating the muriate to dryness, and exposing the residue to a red heat, without the contact of air. It is a semi-transparent pink-colored substance; this, when dissolved in water, produces again a muriate of the metal. The action of iodine on manganese has not been examined.

845. *Manganese and sulphur* do not appear very susceptible of combination; in its metallic state, indeed, manganese will not unite with sulphur, but a sulphuret of manganese was formed by Berthier, by heating the proto-sulphate of the metal in a charcoal crucible. 'The black oxide of manganese heated with sulphur forms a greenish compound, and abundance of sulphurous acid is evolved; is this a sulphuret (enquires Mr. Brande) or a sulphureted oxide of manganese?'

846. *Salts of manganese.*—The sulphate may be formed by dissolving the metal in diluted sulphuric acid, hydrogen gas becomes abundantly evolved, and the solution throws down crystals which are the sulphate of manganese; or this salt may be formed by dissolving the protoxide and the proto-carbonate in strong sulphuric acid. When sulphate of manganese is decomposed by the hypo-sulphite of lime, a hypo-sulphite of manganese is formed.

847. *The nitrate.*—Protoxide of manganese is readily dissolved in dilute nitric acid, and by this solution is formed a salt which is a proto-nitrate. The solution of this salt if exposed to the light throws down a peroxide of the metal.

848. *Muriate of manganese*, as above stated, may be formed by dissolving the chloride in water. It may also be readily produced by saturating muriatic acid with the carbonate.

849. *Chlorate of manganese* has not been investigated.

850. *Carbonate of manganese* is precipitated by the carbonates of the alkalis from the proto-muriate, or proto-sulphate of the metal.

851. *Phosphate of manganese* is produced by adding phosphate of soda to the muriate of the metal.

852. We have not hitherto noticed the compound called *chameleon mineral*, so called from the change of color which its aqueous solution undergoes; this compound is formed by mixing together equal parts of the black oxide of manganese and nitre, and exposing them to a red heat; thus is formed a highly oxidised manganese with potassa; the same compound is likewise procurable by fusing together one part of the oxide with five or six of solid potass. When to this salt a small quantity of water is added, a green solution is formed; an additional quantity of water occasions the solution to be blue, a still further addition causes a purple color, which is heightened by a still greater quantity of water.

853. The properties of this singular substance have been lately investigated by Chevreul. To exclude the presence of iron, on which Scheele suspected its green color to depend, he prepared it by infusing, in a platinum crucible, one part of pure oxide of manganese with eight of potassa, prepared with alcohol. The color of the solution was still green, and by the addition either of more water, or of carbonic acid, or an alkaline carbonate, became successively blue, violet, indigo purple, and red. The green solution Chevreul supposes is a combination of caustic potassa with oxide of manganese, and the red of potassa, oxide of manganese, and carbonic acid. The intermediate colors result from the combination of these in different proportions, as may be proved by the direct mixture of a green with a red solution. The agency of water, even when carefully deprived of carbonic acid, in effecting the same change, shows, however, that the theory does not account for all the phenomena. This fact Chevreul explains by the action of water in diminishing the attraction between the potassa and oxide of manganese; in which way, he apprehends that carbonic acid produces its effect. The oxide, both in the green and red compounds, he asserts is at the same degree of oxidation, a degree probably inferior to that of the native oxide.

854. Messrs. Chevillot and Edouard have ascertained that the colors of the chameleon mineral is owing to manganese, and not to any other metal; that the contact of oxygen gas with the fused materials is essential to its formation, during which oxygen is absorbed; and that the chameleon compound is a neutral salt, susceptible of assuming a regular chrystallised form.

855. When these crystals are heated in contact with hydrogen gas, they cause it to inflame. They detonate violently with phosphorus; and set fire to sulphur, arsenic, and antimony, and indeed to all combustible bodies hitherto tried. The red compound was supposed to be a neutral manganesiate of potassa, and the green a submanganesiate; but it seems more probable, from the experiments of Forchammer, that the difference between the red and green compounds depends not on the quantity of potassa combined with the oxide of manganese, but on the proportion of oxygen united with the manganese itself. (Annals of Philosophy, xvi. 130). Conformably with this view he found that adding alcohol or carbonate of manganese to the red compound changed it to green by abstracting oxygen. The manganese in the latter compound he considers as forming an acid with a minimum of oyygen; the proportions being 100 metal, and 96·847 metal oxygen, constituting manganesious acid; the green salt therefore is a manganesiate of potassa. The red compound contains an acid which may be called the manganesic, and its compounds

manganesiates. In this acid 100 of metal are united with 132 of oxygen, proportions which do not, any more than those of the manganesious acid, agree with any atomic constitution; the one indicating between three and four, and the other between four and five atoms of oxygen to each atom of metal. Though it appears therefore that manganese is capable of forming one or more true acids with oxygen, yet the proportions of the elements of these acids may be considered as still undetermined. The probability is, that manganesious acid consists of one atom of metal, and three atoms of oxygen, and the manganesic, of one atom of base, and four of oxygen. Manganese then is capable of uniting with oxygen in six different proportions, besides the compound oxide formed by the union of two other oxides. *Henry.*

Cobalt.

856. This metal is found in its native state in the form of oxide, and mixed with other metals; Saxony is said to produce the finest specimens of some of the ores of cobalt.

857. In order to obtain the metal pure, the cobalt of commerce (zaffre), is to be calcined with nitre and charcoal, to be reduced by means of black flux; and then the metal, having in this way been procured, is to be detonated with three times its weight of dried nitre, which produces an oxide, which is to be first cleared of its admixtures, and then again reduced by the black flux. In the Manual of Chemistry by Mr. Brande, we met with the following directions for obtaining and purifying cobalt:—'The cobalt of commerce, in fine powder, may be calcined with four parts of nitre and washed in hot water, by which arsenic is separated; then digest in dilute nitric acid, and immerse a plate of iron, which will separate the copper; filter and evaporate to dryness; digest the dry mass in liquid ammonia and filter: expel the excess of ammonia from the filtered liquor by heat, taking care not to produce a precipitate, and then add solution of potassa, which throws down oxide of nickel; filter immediately and boil, which will occasion the separation of oxide of cobalt, and which ignited with charcoal furnishes the pure metal. In this process the first calcination with nitre often requires two or three repetitions, in order to get rid of the whole of the arsenic, which adheres to cobalt with much obstinacy.'

858. Cobalt is of a reddish-gray color; it is easily reduced to powder, but for its fusion requires 130° of Wedgwood. It crystallises after fusion if slowly cooled, and it is magnetic.

859. *Oxygen and cobalt.*—Cobalt unites with oxygen in two proportions, forming the protoxide, or dark blue oxide; and the peroxide, or black oxide of cobalt.

860. The first may be procured by precipitating the nitrate of cobalt with potassa, or by subjecting the metal to a strong heat for a length of time under exposure to the air. This oxide, if treated with muriatic acid, gives chlorine gas, and a red solution is obtained; it becomes a red hydrate also by being left in contact with water; if exposed to the atmosphere for any length of time, a gradual absorption of an additional quantity of oxygen is the consequence, and the oxide assumes an olive-green appearance; this Sir H. Davy supposes to be a mixture of hydrate and oxide of the metal, rather than a peculiar metal.

861. The black peroxide is obtained by heating the protoxide in the open air; and in this way the metal receives its maximum quantity of oxygen; this is soluble in muriatic acid, and a copious disengagement of chlorine is effected during the solution.

862. *Chlorine and cobalt.*—When heated in chlorine, the chloride of cobalt is formed; but this compound has not been investigated.

863. *Chlorine and sulphur.*—The sulphuret of cobalt is formed by heating the oxide of the metal with sulphur; a yellowish-white compound is the result, which does not seem to possess any interesting properties. The same may be said of the phosphuret of cobalt, which is also a white compound.

864. *Salts of cobalt.*—Sulphate of cobalt may be obtained by dissolving the newly formed protoxide in sulphuric acid. The salt somewhat resembles in its appearance the sulphate of iron; its reddish crystals, when dried with a high heat, fall into a blue powder, which is the anhydrous sulphate of cobalt.

865.—*Nitro-muriate of cobalt.*—In order to form this, we are directed to digest one part of cobalt, or still better of zaffre, in a sand heat, for some hours, with four parts of nitric acid. To this solution add one part of muriate of soda, and dilute with four parts of water. Characters written with this solution are illegible when cold; but when a gentle heat is applied they assume a beautiful color, which is invariably blue if the cobalt has been pure, or green if it contained iron or copper (see Philosophical Transactions, 1796). This experiment is rendered more amusing by drawing the trunk and branches of a tree in the ordinary manner, and tracing the leaves with a solution of cobalt. The tree appears leafless till the paper is heated, when it suddenly becomes covered with beautiful foliage. *Henry.*

866. *Nitrate of cobalt* is a red deliquescent salt, which, by being treated with liquid potassa, becomes a hydrate.

867. *Carbonate of cobalt* may be produced by adding the carbonates of the alkalis to the sulphate, nitrate, or muriate, of the metal; it is precipitated in the form of a reddish-blue powder.

868. Neither the chlorate nor the iodate of cobalt has been examined.

869. The *phosphate* is formed by adding phosphate of soda to muriate of cobalt, or by dissolving the carbonate in muriatic acid. It is of a lilac color, and insoluble, and if mixed with eight parts of precipitated alumina, and subjected to heat, it dries into a beautiful blue, which Thenard states may be substituted for ultramarine.

870. The alloys of cobalt are not very important. The principal value of the mineral is derived from its color. If zaffre, which is mostly brought from Germany, be fused with glass, smalt and azure blue are formed. Cobalt is employed in the manufacture of colored porcelain, ea[illegible]ware, and glass.

TELLURIUM.

871. The ores of this metal have been found in the mines of Transylvania, and in Siberia. One hundred parts of an ore of gold, discovered by Klaproth, yielded above ninety of tellurium.

872. From the ores the metal is to be extracted, by adding potassa to a solution of the ore in nitro-muriatic acid. This addition precipitates all the metallic matter that may have been in the solution, and when added in excess again takes up a precipitate that the alkali had at first occasioned. When muriatic acid is added to this alkaline solution, a precipitate again takes place, and this treated with charcoal affords the metal.

873. Tellurium is of a whitish-gray color, with considerable lustre. It is brittle, easily fused, and is exceedingly volatile.

874. *Oxygen and tellurium.*—Tellurium readily burns when exposed to heat in contact with air; in its combustion it exhales a very peculiar odor, and exhibits a bluish flame with green edges; a yellowish-white oxide is the result of the combustion.

875. *Chlorine and tellurium.*—By heating the metal in chlorine a white compound is formed, which is a chloride, and which is decomposed by water.

876. *Iodine and tellurium.*—Iodine also combines with the metal into an iodide, which forms an hydriodate when dissolved in water.

877. *Hydrogen and tellurium.*—The metal is stated to form two distinct compounds with hydrogen: '1st, By making tellurium the negative surface in water; in the galvanic circuit a brown powder is formed, which is a solid hydruret of tellurium. 2dly, By acting with dilute sulphuric acid upon the alloy of tellurium and potassium (which may be obtained by heating a mixture of solid hydrate of potassa, tellurium, and charcoal), we obtain a peculiar gas. This gas has a smell resembling that of sulphureted hydrogen. It is absorbed by water, and a claret-colored solution results, which, by exposure to the air, becomes brown, and deposits tellurium. After being washed with a small quantity of water, it does not affect vegetable blue colors. It burns with a bluish flame, depositing oxide of tellurium. It unites with the alkalis, precipitates most metallic solutions, and is instantly decomposed by chlorine. It may be called tellureted hydrogen gas.' *Henry.*

ARSENIC.

878. The substance which is found in the shops under the name of arsenic is not the metal itself in its abstract or pure state, but a white oxide of it, from which metallic arsenic is to be obtained by the following process:—Mix two parts of the white oxide with one of black flux (prepared by deflagrating in a crucible one part of nitre with two of powdered tartar), and introducing this mixture into a crucible, invert over this crucible another, and let the two be luted together A red heat is to be applied to the lower one, while the upper one is to be kept cool. In this way the arsenic will be reduced, and will be found lining the interior of the upper crucible.

879. Arsenic, in its native state, has been met with in Cornwall, and in some parts of Europe; it is not unfrequently connected with cobalt, lead, silver, and nickel ores. It is of a steel blue color, very brittle, and easily fusible; its vapor having a strong garlicky smell, by which its presence is often detected. It burns, when thrown on a red hot iron, with a blue flame, and a white smoke. If exposed to moisture, an imperfect oxide is formed on the surface, which manifests itself by a gray incrustation.

880. *Arsenic and oxygen.*—Two definite compounds have been procured of arsenic and oxygen, and both of these are rather acids than oxides; the one is indeed called generally arsenious and the other arsenic acid, and the salts they form are named arsenites and arseniates.

881. The *arsenious acid*, or as it is usually termed white arsenic, is the most commonly occurring compound of this metal. It is white, semi-transparent and brittle. It is volatile at 380°. It has a very acrid taste; is sparingly soluble in water, and by slow evaporation it forms tetrahedral crystals.

882. *Arsenic acid.*—Distillation of arsenious acid, or metallic arsenic with nitric acid, eventually converts the arsenious into arsenic acid; but we are directed, for effecting this conversion, to mix four parts of muriatic acid, twenty-four of nitric, and eight parts of arsenious acid together, gradually raising the heat of the retort in which they are mixed.

883. Arsenic acid is a white substance; it has a sour, and at the same time a metallic taste; it is deliquescent, and does not crystallise.

884. *Arsenic and chlorine.*—Chloride of arsenic may be formed by throwing the metal, finely powdered into chlorine; or by distilling six parts of corrosive sublimate with one part of powdered arsenic. In this way the substance is formed, which used to be called butter of arsenic. Water decomposes the chloride, white oxide of arsenic or arsenious acid, being formed, and muriatic acid at the same time produced.

885. *Iodine and arsenic.*—An Iodide is obtained by heating the metal with excess of iodine; it is of a deep red color, is volatile; and this, when acted on by water, affords arsenic and hydriodic acids.

886. *Arsenic and hydrogen.* (*Arsenureted hydrogen gas*).—This may be obtained by dissolving tin in liquid arsenic acid, or by adding a portion of metallic arsenic, or of the white oxide to that mixture of zinc filings, with dilute sulphuric acid, which is commonly employed to produce hydrogen; or the compound may be produced by presenting arsenic at once to nascent hydrogen.

887. This gas (arsenureted hydrogen), is a permanently elastic and invisible fluid; it has a fetid garlicky smell, it extinguishes a taper, and burns when ignited, with a blue flame; if the ignition be in oxygen gas, the flame is exceedingly brilliant; during its burning it deposits arsenic and oxide of arsenic. If the gas be detonated with four volumes of oxygen, the result is arsenious acid and water. A very strong attraction appears to exist between hydrogen and arsenic. 'If bubbles of chlorine be passed up into a jar of arsenureted hydrogen, standing over warm

water, flame and explosion are often produced, muriatic acid is formed, and a brown hydruret is deposited; but if the gas be passed in the same way by successive bubbles into chlorine, no inflammation results, absorption takes place, and muriatic acid and chloride of arsenic are formed. If the chlorine be not very pure, and when the gases are cold, inflammation seldom follows their mixture.' *Brande*.

888. *Arsenic and sulphur.*—There are two sulphurets of arsenic: one a red compound, which is commonly known under the name of realgar, which is found native in some parts of Germany and Switzerland, and which may be artificially formed by heating arsenic and sulphur together. See DYEING.

889. The other is of a bright yellow color, and is named orpiment. This is also met with native in Europe, in China, and in South America: it may be obtained by dissolving arsenic in muriatic acid, and adding to the solution hydrosulphuret of ammonia. It is used in calico printing.

890. *Salts of arsenic.*—These are not of much importance; they are found to resemble the phosphates 'in this, as in other respects, that though carefully neutralised when in solution, yet when concentrated by evaporation, they crystallise with an excess of base.'

The binarseniate of potassa is used in medicine. See PHARMACY and MEDICINE.

CHROMIUM.

891. This metal was discovered in 1797, by Vauquelin. It is to be obtained in a metallic state by heating its acidified oxide with charcoal. The color of chromium resembles iron. It is brittle, and not easily fused.

892. *Chromium and oxygen.*—When the metal is subjected to heat in the air, a green protoxide is obtained, which is easily soluble in acids.

893. This protoxide has been found native in France, it is the matter which gives color to the emerald.

894. *A brown deutoxide* of the metal is obtainable by exposing its nitrate to a red heat. This is not soluble in the acids, but when put into muriatic acid, and the mixture is exposed to heat, there is an evolution of chlorine, and a muriate is formed.

895. *The peroxide of chromium, or chromic acid*, may be procured with most facility by boiling the lead ore of the metal in a solution of potassa. We thus form an orange colored solution, which is made up of potassa and chromic acid; then, if we add sulphuric acid and evaporate, crystals of chromic acid will make their appearance, in connexion with the sulphate of potassa. In the general way chromate of iron is made use of, in conjunction with nitre, for the purpose of obtaining the acid, this being a more common, and therefore a cheaper mineral than the chromate of lead.

896. *Salts, &c. of chromium.*—The chromates of ammonia, potassa, soda, lime, and magnesia, are soluble and crystallisable, and of an orange color. The chromates of baryta and strontia, are difficultly soluble, and may be formed by adding chromate of potassa or soda to their soluble saline compounds. The other insoluble metallic chromates may be formed in the same way, and their colors, which are various and beautiful, often enable us to judge of the nature of the metal present. This chromate of soda forms insoluble precipitates in solution of silver, mercury, lead, copper, iron, and uranium; the colors are crimson, red, orange or yellow, apple-green, brown, and yellow. It forms no precipitate in solutions of nickel, zinc, tin, cobalt, gold, or platinum, whence, perhaps, it may be inferred that the chromates of the latter metals are soluble.

897. The chromates are decomposed by muriatic, nitric, and sulphuric acids. Muriatic acid, heated with the chromates, evolves chlorine, the chromic acid being reduced to the state of oxide. The most correct details respecting the chromates that have been published, are to be found in *Vauquelin's Essay, Annales de Chimie*, 70.

898. The green oxide of chromium is occasionally used in porcelain and enamel painting, and the artificial chromate of lead forms a rich and durable yellow.

899. The remaining compounds of chromium are as yet unexamined.—*Brande*.

MOLYBDENUM.

900. The most commonly found native form of this metal is that of a sulphuret, which was long supposed to be a carburet of iron. And, in order to procure the metal itself, this native sulphuret is to be exposed to a red heat till a gray powder is formed, which is to be dissolved in ammonia, and evaporated to dryness. The residuum is to be treated with nitric acid, and again evaporated to dryness; a white oxide of the metal is thus procured, which may be reduced to a metallic state by heating it violently either with charcoal or oil.

901. Molybdenum is of a whitish-yellow, and internally gray color; it is exceedingly difficult of fusion; it appears in the form of small grains.

902. *Molybdenum and oxygen.*—The metal becomes acidified by exposure to heat and oxygen; molybdic and molybdous acids being formed according to the quantity of combined oxygen; the first is a white crystalline substance, which is converted into the second acid by mixing with two parts of it one part of powdered *molybdenum*, triturating them in boiling water, filtering and evaporating. This is a fine blue substance, and is more soluble in water than the molybdic acid. Dr. Thomson states, that, besides these compounds of oxygen and molybdenum, a dark brown oxide may be obtained by heating the molybdic acid with charcoal.

903. *Salts of molybdenum.*—Both the acids unite with bases, and form saline compounds, but very little is known of the habits and properties of these salts.

TUNGSTEN.

904. The substance, which is vulgarly called tungsten, consists of the tungstic acid combined with lime, and the metal tungsten may either be procured from this substance, or from the material called wolfram, which is composed of the same acid in union with iron and manganese. If the

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COLUMBIUM.

netal was first discovered by Mr.
mineral belonging to the British Museum, and supposed to have been brought from Massachusetts in North America; an analagous, and according to Dr. Wollaston's investigation absolutely the same, metal, was discovered by a Swedish chemist of the name of Ekeberg, in the minerals called tantalite and yttro-tantalite, and he gave the name of tantalum to it.

909. Columbium has recently been reduced into a metallic form by Berzelius, by treating it with charcoal; and by acting with potassium on the fluo-tantalate of potassa, fluate of potassa becomes formed, and the tantalum or columbium is revived. It is described as of a dark gray color, of an irony appearance, having metallic lustre when scratched with a knife, as an exceedingly bad conductor of electricity, and as being convertible into an acid when strongly heated.

910. This acid, the columbic, Mr. Hatchett found to combine very readily with potassa. The properties of columbium remain for further investigation.

SELENIUM. (See 458)

OSMIUM, IRIDIUM, AND RHODIUM.

911. We arrange these three metals under one head, because they are all found in the ore of platinum.

912. Osmium and Iridium were discovered by Mr. Tennant in 1803; and in the same year were rhodium and palladium discovered by Dr. Wollaston.

913. Osmium is to be separated from the platinum ore by digesting the ore in nitro-muriatic acid, which dissolves the greater portion of it; the black powder which remains, when fused with potassa or soda, furnishes a brownish-yellow solution of oxide of osmium alkalised. Saturate the alkali with a mineral acid, and distil, and a colorless solution of the oxide of osmium passes from the retort into the receiver, which has a sweetish taste, and a smell somewhat resembling chlorine gas. Or the oxide may be directly obtained by distilling the original black powder with nitre or potassa.

914. When this oxide is shaken with mercury its peculiar smell is lost; and the metal combining with the mercury forms an amalgam, which may be decomposed by distillation, leaving the osmium in a metallic form.

915. Osmium becomes oxidised with much facility; it is insoluble in the acids, but soluble in potassa; its oxide, as above remarked, has a very peculiar smell, and is exceedingly volatile. See for other methods of extracting osmium, &c. from the ore of platinum, *Quarterly Journal*, xii. 247.

916. As osmium is obtained from the alkaline solution of the black powder above mentioned, so is iridium from the acid solution of the same material, or rather from that part of it which the acids take up. This was named iridium, from the circumstance of the solution undergoing several changes in color.

917. Iridium may be obtained in its metallic state by immersing a plate of zinc into a solution of the muriate of the metal, or by subjecting to a violent heat the crystals of the muriate. It is of a whitish color, and only fusible by intense galvanic influence.

918. Rhodium may be obtained from the platinum ore by the following process:—Digest it in a small quantity of nitro-muriatic acid, when the solution is saturated, pour it into a solution of muriate of ammonia, which will occasion a precipitate of the greater proportion of the platinum. Let the clear liquor be decanted, and a plate of zinc immersed in it, which will thus become coated with a black powder. Let this be separated from the zinc, and washed with dilute nitric acid, which will take up the copper and the lead contained in the black powder. Then digest the remainder in dilute nitro-muriatic acid, to which add a small quantity of muriate of soda; now evaporate to dryness, and let the dry mass be repeatedly washed with alcohol; the alcohol will take up the soda, muriate of platinum, palladium, and rhodium, and leave a red substance; which, when dissolved, throws down a black powder, if zinc be put into the solution. This may be strongly heated with borax, by which process the substance will acquire a white metallic lustre; and this metal is rhodium.

919. Rhodium is extremely difficult of fusion; it unites with the other metals (all that have been tried with it, except mercury,) in alloy. The alloy of it with lead, when dissolved in nitro-muriatic acid, and evaporated, forms an insoluble chloride; the rose color of which originated the name of the metal.

920. Three oxides of rhodium have been described by Berzelius, the protoxide, the deutoxide, and the peroxide; and Dr. Thomson's experiments have led to the verification of the protoxide and the peroxide; the former a black, the latter a yellow substance.

For an account of PALLADIUM, see 642.

URANIUM.

921. This metal may be obtained from the mineral called pechblende, which was formerly considered an ore of zinc, but is now ascertained to be a native sulphuret of uranium. The mineral called uranite, contains a pretty pure oxide of uranium; but it is scarce, and therefore not employed for the reduction of the metal.

922. The pechblende is to be finely powdered and digested with heat in nitro-muriatic acid; ammonia in excess is to be added, the precipitate to be collected, washed, and dried with considerable heat. By subjecting this dried mass to a very high temperature with charcoal, metallic uranium may be obtained.

923. Uranium is of a gray or liver-brown color, it is brittle, and with great difficulty fused.

924. *Uranium with oxygen.*—A protoxide and peroxide of the metal have been described; but the protoxides have so strong a tendency to pass into the state of peroxides and the peroxides combine with other combinations of oxygen, and so few satisfactory experiments have hitherto been made on the subject, that less is known respecting it, than that of most other metals.

925. The salts too of uranium from the same cause are subject to changes.

TITANIUM.

926. Titanite, and menachanite are the two minerals from which titanium is obtained. The first is an almost pure oxide of the metal; and the metal may be procured from it by first fusing it with double its weight of potassa; then dissolving the fused mass in muriatic acid, and adding to the solution oxalic acid. In this way a pure oxalate of the metal is formed, which is to be intensely heated with charcoal, for its reduction to the metallic state; which is a result, however, obtained with some difficulty, and the evidence of its accomplishment was hardly satisfactory, till some very recent observations of Dr. Wollaston with respect to the existence of the metal in a native state.

927. Titanium has a copper color. It is said to be capable of uniting with oxygen in two proportions, the one, the protoxide, forming a blue compound, while the peroxide or titanic acid is white.

928. It has been stated that no satisfactory compounds exist, 'in which titanium can be considered as a base.'

929. Chlorides, however, and sulphurets of the metal have been described.

930. 'The solutions of titanium are colorless, and afford white precipitates with the alkalis; ferro-cyanate of potassa gives a green precipitate, and infusion of galls a red one. Hydro-sulphuret of ammonia occasions a green precipitate,' *Brande.*

CERIUM.

931. Berzelius and Hisinger first obtained the metal from a mineral which has been named cerite, on account of the metal which exists in it being named cerium, from having been discovered about the time of the discovery of the planet Ceres. This metal is also contained in a mineral from Greenland, called allanite, from Mr. Allan of Edinburgh having been the first to recognise it as a peculiar species.

932. Oxide of cerium is obtained from this ore, by reducing the ore to a fine powder, calcining it, and then digesting it in nitro-muriatic acid. When this solution has been filtered, it must be saturated by potassa, and then precipitated by tartrate of potassa or oxalic acid. The precipitate is the oxide of the metal, which, however, is exceedingly difficult of reduction. Vauquelin's attempts succeeded only to the extent of obtaining a very small metallic globule. This globule was slowly dissolved even in nitro-muriatic acid.

933. Cerium has been found to combine with oxygen in two proportions. The protoxide is a white compound, and the peroxide is of a reddish-brown color.

934. *Salts of cerium.*—The sulphuric and the muriatic acids dissolve the peroxide, and produce yellow or orange colored crystals. Sulphuric acid also acts on the protoxide, and gives crystals which are white, and have a saccharine taste.

POTASSIUM.

935. The reader will have observed that in very many cases, especially when the subject to be treated of has involved the consideration of novel doctrines and principles, we have preferred announcing those principles in the language of able and experienced chemists, to making

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tensely heated iron, which substance at a very high temperature attracts oxygen from the alkalis with more force than the base otherwise retains it; and Mr. Brunner has subsequently found that the decomposition of the alkali is effected with much more facility by the employment of charcoal along with the iron. See *Thenard's Traité de Chimie*, and *Quarterly Journal*, xv. 279.

946. Potassium is a white metal, existing in small globules like quicksilver, at 70°. At 150° it is perfectly fused, and at 32° it is a hard and brittle solid, and at 50° it is soft and malleable, having the appearance of silver. It is a perfect conductor of electricity and heat.

947. *Potassium and oxygen.*—This metal attracts oxygen even at the common temperature of the atmosphere; and when it is thrown into water it instantly inflames, attracting the oxygen of the water, it becomes an oxide, which is dissolved, and hydrogen gas is evolved. It is susceptible, however, of different degrees of oxidisement. If it be heated either in common air or oxygen gas below the point necessary for its inflammation, or merely confined for a few days in a phial loosely corked, a grayish substance is formed, which appears to be a mixture of protoxide of the metal with the metal itself.

948. *The protoxide of potassium* is best obtained by treating the metal as above stated with water, and a peroxide of the metal is obtained by passing oxygen over potassa heated to redness, or heating potassium itself in a considerable excess of oxygen. This peroxide of potassium is of an orange color, when put into water it effervesces, oxygen gas being given off, and a solution of the hydrated protoxide obtained.

949. *This hydrated protoxide, or hydrate of potassa*, or *caustic potash*, may be procured by decomposing the carbonate of potassa by lime. This is the potassa fusa of the Pharmacopœia, and is used by surgeons as a caustic. When purified, hydrate of potassa is white, exceedingly acrid and corrosive; it rapidly absorbs moisture and carbonic acid from the air; it neutralises acids, has a saponaceous feel, renders oil miscible with water, and proves a solvent to resins. It was formerly called vegetable alkali.

950. *Potassium and chlorine.*—Chlorine acts with much energy upon potassium, and by the mixture a white compound is formed, which has been named muriate of potassa, but which is properly a chloride of potassium. This compound is likewise formed by heating potassium in gaseous muriatic acid, the gas being in this case converted into chlorine, which directly attaches itself to the potassium, and hydrogen is evolved. This compound is stated to dissolve without decomposition in three parts of water at 60°. The crystals which it forms are cubical; they have a saline and bitter taste; and do not undergo much change when exposed to the air. The salt was at one time known under the name of salt of silvius; it has likewise been called regenerated sea-salt.

951. *Iodine and potassium.*—Iodine also acts on potassium with much energy. If they are heated together, iodine being in excess, a light of a purplish tinge is seen to issue from the combination at the moment of its forming. The compound is white, fusible, and crystalline. It decomposes water, and forms an hydriodate of potassa, which again if exposed to heat gives out its water, and becomes reconverted into iodide of potassium.

952. *Hydrogen and potassium.*—Potassium heated in hydrogen produces a hydruret, which is of a gray color, not fusible, and without metallic lustre. It is inflammable, and burns vividly when exposed to a high temperature; and it may be reduced to the state of potassium, by heating it very strongly in a close vessel, so as to liberate its hydrogen in a state of gas. Heated mercury will likewise liberate the hydrogen from this compound, and produce an amalgam of the mercury with potassium.

953. *Sulphur and potassium.*—If potassium be fused with sulphur, a gray sulphuret of the metal is produced, heat and light being evolved from the combination. This compound gives out sulphuretted hydrogen, when acted upon by water or diluted acids.

954. *Phosphuret and potassium.*—A phosphuret of potassium may be produced by fusing these substances together. The color of this compound is leaden; but there is another compound of the same materials of a chocolate color; so that it is probable these two bodies (potassium and phosphorus) unite in different proportions, the lead-colored compound consisting of two atoms of metal + 1 of phosphorus; and the chocolate of one atom of metal + 1 of phosphorus.

Salts of Potassa.

955. *Sulphate of potassa.*—Several chemical operations give this salt as one of their results. It may be formed in the direct way by mixing sulphuric acid and potassa, and crystallising the solution.

956. The taste of this salt is bitter; it fuses and eventually volatilises by a strong heat; it dissolves in sixteen parts of water at 60°, and five of boiling water. At high temperatures it is decomposed by charcoal, and becomes a sulphuret, but it is not thus decomposed when treated with sulphur.

957. *Super-sulphate, or bi-sulphate of potassa.*—This may be formed by boiling the sulphate with sulphuric acid, or by dissolving in hot water the remains of the distillation of nitric acid from a mixture of sulphuric acid and nitrate of potass. This salt contains twice as much acid as the sulphate; it has an exceedingly sour taste, is insoluble in alcohol, and acts powerfully on vegetable blues. It was formerly called arcanum duplicatum.

958. *Nitrate of potassa.*—This salt, which is commonly known under the name of nitre or saltpetre, is principally imported for commercial purposes from the East Indies. The nitre of commerce is, however, exceedingly impure; being frequently mixed with a very large proportion of common salt, by which indeed it becomes partially decomposed.

959. It may be obtained directly by saturating nitric acid with potassa, and crystallising the solution.

960. In France and Germany it is artificially

produced upon a very large scale, and in what are termed beds of nitre. The process consists in lixiviating old plaster rubbish. When animal and vegetable putrifaction go on in contact with soils which are calcareous, a nitrate of lime becomes abundantly formed, and, from this, nitre is obtained by treating it with carbonate of potassa. See Thenard's Traite de Chimie Elementaire, for a full account of the French process for producing nitre.

961. Nitre forms in six-sided prismatic crystals; it is soluble in seven times its weight of water at 60°, and water at 212° takes up its own weight. The addition of common salt makes it much more soluble. Nitre fuses by the application of a moderate heat, and forms what is called sal-prunelle, which is moulded into cakes for sale. At a red heat nitre is decomposed, and this decomposition is materially assisted by a mixture of charcoal, to which it gives its oxygen, and the results are carbonic oxide and acid, nitrogen and sub-carbonate of potassa.

962. Nitre, by being subjected to such a degree of heat as to disengage a portion of its oxygen, is converted into a nitrite.

963. Sulphur decomposes nitre, and occasions different compounds, according to the proportion of the ingredients, and the mode of admixture.

964. The compound called fulminating powder is formed of three parts of nitre, two of salt of tartar, and one of sulphur. This composition violently explodes when thrown on a heated iron, owing to the rapid action of the sulphur upon the nitre.

965. *Gunpowder* is composed of one part of sulphur, one of powdered charcoal, and five of nitre, or of different proportions of the last ingredient, according as rapidity and force of explosion are required, the nitre being in the largest quantity in that powder which is required to explode quickly, as in the shooting powder. The ingredients are all separately powdered, then rubbed and beaten together with moisture into a cake, which is afterwards broken up, granulated, and dried very cautiously.

966. The action of the combustible materials upon the nitre, induced by augmented temperature, or by a spark, occasions the immediate production of gaseous matter, and hence the explosion of gunpowder. Carbonic oxide, carbonic acid, nitrogen and sulphurous acid, are the principal gaseous results, and the solid residue consists of sub-carbonate, sulphate, and sulphuret of potassa and charcoal.

967. *Carbonate of potassa.*—This is a salt of much importance. It has been called salt of tartar, potash, pearl-ash, &c. accordingly as it may have been procured, or according to the degree of purity in which it is met with.

968. Potassa, in solution, easily attracts carbonic acid, and the salt may be obtained by directly exposing a solution of potassa to the gas; a solution of potassa which has condensed all the carbonic acid it is capable of absorbing, when evaporated to dryness, affords sub-carbonate, or more properly carbonate of potassa. Sub-carbonate is the name under which it has been received into the Pharmacopœia. See PHARMACY.

969. Carbonate of potassa may also be obtained by calcining the bi-tartrate of potassa, or tartar, as it is vulgarly called; hence the name salt of tartar.

970. Carbonate of potassa is a very deliquescent salt; it has an alkaline taste, and it renders blue infusions of vegetables green.

971. It has the susceptibility of a surcharge of carbonic acid; and this may be effected by passing a current of carbonic acid into a solution of the carbonate. This solution being slowly evaporated, affords crystals which are not so alkaline in their taste as the carbonate. They are properly a bi-carbonate, the quantity of carbonic acid being double that of the carbonate.

972. *Chlorate of potassa.*—This salt may be formed either by passing chlorine gas through a solution of potassa, or by directly mixing liquid chloric acid with the solution of this salt. The solution is to be put on one side, in a place excluded from light and heat for about twenty-four hours, and the chlorate will form crystals.

973. Chlorate of potassa has a sharp cool taste; it gives out a phosphorescent light when triturated in the dark; it requires for solution seventeen parts of cold, and two and a half of boiling water. It yields oxygen gas after fusion, when exposed to a high temperature. It acts with energy upon many inflammable bodies, and an explosion is caused by triturating it with sulphur, phosphorus, and charcoal. It has indeed been proposed as a substitute for nitre in gunpowder, but the facility with which it detonates when treated with inflammable substances, constitutes an objection to its employment for this purpose.

974. *Perchlorate of potassa.* (*Oxychlorate*). This may be produced by mixing one part of the chlorate with three of sulphuric acid; and exposing the mixture to a gradual heat, till the compound turns white. In this way is formed a mixture of bi-chlorate and per-chlorate, which may be separated by solution and crystallisation, since the bi-chlorate is much more soluble than the perchlorate.

975. This salt does not change vegetable colors; for its solution it requires more than fifty times its weight of cold water. When subjected to the temperature of 412°, it gives out oxygen, and chloride of potassium remains.

976. *Iodate and hydriodate of potassa.*—These salts are both formed by putting iodine in a solution of potassa; the iodate is soluble with difficulty, while the hydriodate is very soluble; the latter may be separated from the former by means of alcohol; the iodate remaining in small white crystals.

977. *Phosphate of potassa.*—This salt may be obtained by mixing phosphoric acid with a solution of carbonate of potassa to the point of neutralisation. The solution being carefully evaporated, must then be put aside for some days for crystals to form.

978. The sub-phosphate is procured by fusing together, in a platinum crucible, the phosphate and hydrate of potassa. A super or bi-phosphate is formed by dissolving the phosphate in phosphoric acid.

979. There are likewise phosphites of potassa

980. *Borate of potassa* may be procured by subjecting a mixture of boracic acid and nitrate of potassa to a bright red heat; or it may be obtained by a mixture of boracic acid with potassa.

981. Fluoric acid unites with potassa, and forms two distinct compounds, viz. the acid or bi-fluate, and the neutral fluate. And hydro-cyanate of potassa may be formed by mixing together hydro-cyanic acid, and hydrate of potassa. This salt becomes a cyanide of potassa by calcination. The ferro-cyanate, which was formerly called triple prussiate, is obtained by digesting the hydro-cyanate of potassa in a liquid state with the protoxide of iron; or by digesting the ferro-cyanate of iron with the liquid hydrate of potassa. This curious compound is regarded by Berzelius rather as a cyanide than a hydro-cyanate, and 'this cyanide, in common with all those in which the metal is strongly electro-positive, as those of sodium, barium, &c. he believes to continue such, even after solution in water; while the cyanides with weaker bases, such as those of ammonia, and many of the metallic oxides, become on the contrary, hydro-cyanates.'

982. *Potassa and sulphur.*—When these two substances are fused together, a red sulphuret of potassa is produced, formerly called liver of sulphur. This is a compound which is exceedingly soluble in water, and the solution becomes a hydro-sulphuret. 'The action of sulphuret of potassa on water, says Mr. Brande, is complicated, and has been variously explained. By some this is considered as a compound of potassium and sulphur, in which case, when acted upon by water, hydrogen is imparted to the sulphur and oxygen to the potassium, and a sulphuret of potassa, with excess of sulphur (or sulphureted sulphuret of potassa) is formed. If we consider the sulphuret as consisting of potassa and sulphur, then the oxygen, as well as the hydrogen, of the water must be transferred to the sulphur, and sulphuric and sulphurous acid, and sulphureted hydrogen would be formed. And generally, when the solutions of the livers of sulphur are examined, sulphate and sulphite of the alkali are found. On the whole, however, it appears most probable, that when sulphur and the alkalis are fused together at a high temperature, the latter undergo decomposition, and that sulphurets of their metallic bases are actually formed.' *Vauquelin. Ann. de Chim.*

983. The hydro-sulphuret may be converted into a hypo-sulphite, by adding to it sulphurous acid; and a sulphate is produced by subjecting a solution of potassa, in its carbonated state, to the action likewise of sulphurous acid.

984. *Compounds of potassium with metals:* (extracted from Dr. Henry's Elements). With mercury potassium gives some extraordinary and beautiful results. The combination is very rapid, and is effected by merely bringing the two metals into contact at the temperature of the atmosphere. The amalgam in which the potassium is in the least proportion seems to consist of about 1 part in the weight of basis, and 76 of mercury. It is very soft and malleable, but, by increasing the proportion of potassium, we augment in a proportional degree the solidity and brittleness of the compound.

985. The compound of mercury and potassium may be obtained by an easy and simple process, first pointed out by Berzelius. Mercury, to the depth of a line, is put into a glass capsule two inches in diameter, with a flat bottom. On this a solution of pure potassa is poured; an iron wire connects the mercury with the negative pole of a galvanic arrangement, which need not contain more than 20 pairs of plates; and a spiral platina wire from the positive pole is immersed in the solution, and kept within about a line from the surface of the mercury. In six hours the effect is observable, and in twenty-four is very distinct; for in that time more than 1200 grains of mercury will be rendered solid by combination with potassium. Unfortunately this combination cannot be so decomposed as to obtain the potassium in a separate state.

986. In this state of division potassium appears to have its affinity for oxygen considerably increased. By a few minutes exposure to the air, potassa is formed, which deliquiates, and the mercury is left pure and unaltered. When a globule is thrown into water it produces a rapid decomposition and a hissing noise, potassa is regenerated, pure hydrogen disengaged, and the mercury remains free.

987. The fluid amalgam of potassium and mercury dissolves all the metals; and in this state of union mercury even acquires the power of acting on platina.

988. Potassium unites also with gold, silver, and copper; and when the compounds are thrown into water, this fluid is decomposed, potassa is formed, and the metals are separated unaltered. When the reduction of an ore has been accomplished by the use of fluxes containing potassa, M. Vauquelin has shown that the revived metal contains a greater or less proportion of potassium, which modifies its properties. By exposure to the air, or by the action of water, this impurity may be removed.

989. Potassium reduces all the metallic oxides when heated with them, even of those metals which most powerfully attract oxygen, such as oxides of iron. In consequence of this property, it decomposes and corrodes flint, and green glass by a very gentle heat; potassa is generated with the oxygen taken from the metal, which dissolves the glass, and exposes a new surface. At a red heat even the purest glass formed merely of potassa and silica is acted upon. The alkali in the glass seems to give up a part of its oxygen to the potassium, and an oxide of potassium results, with a less proportion of oxygen than is necessary to constitute potassa. The silica also it is probable is partly deoxidised.

SODIUM.

990. By a process similar to that which procured potassium from potassa, Sir H. Davy obtained from soda the metal now to be noticed. In the chemical characters of this last metal there is also a considerable resemblance to potassium; it is soft and malleable; in color it resembles lead, when heated in contact with air it rapidly oxidises, and when thrown into water it combines with the oxygen of the fluid, and causes hydrogen to be evolved with violent effervescence.

991. *Sodium and oxygen.*—The well known substance called soda is a protoxide of sodium. It may be obtained by burning sodium in air containing just enough of oxygen to change the metal into an alkali. In the experiment also just alluded to, of throwing sodium into water, a solution of soda is obtained. The substance, however, is commonly formed in an artificial manner by subjecting its carbonate to the action of lime.

992. *A peroxide* of the metal may be procured by burning it with an excess of oxygen. This substance is of an orange color; it may be converted into soda by the action of water, its excess of oxygen escaping, and thus leaving a solution of the protoxide.

993. *Sodium and chlorine.*—Sodium when heated in chlorine produces a white compound, with a penetrating taste, which is a chloride of sodium, or in other words common salt. This compound may also be formed by heating sodium in muriatic gas, and thus producing a muriate of soda, a name by which, until the discovery of Davy respecting the metallic composition of the alkalis, common salt was known. There is this difference, however, between the chloride of sodium and the muriate of soda, that the latter can only exist in a fluid state, or in a state of solution, while chloride of sodium has in reality no proper existence but in the condition of a solid, for when acted on by water it necessarily decomposes the fluid and becomes a muriate of soda.

994. Common salt exists in a native state abundantly. It is found in large quantities in Cheshire, and is called rock salt. For an account of its manufacture and properties, see the article Salt in this Encyclopædia. See also *Aikin's Dictionary of Chemistry*, article *Muriate of soda.*

995. *Sodium and Iodine.*—Iodine acts on sodium in the same manner as it does on potassium, and an iodide of sodium is the result; this compound when treated with water forms both an hydriodate and iodate of soda.

996. Sulphur and phosphorus act upon sodium and produce sulphurets. The sulphuret of sodium is gray. The phosphuret has the appearance of lead.

Salts of Soda.

997. *Sulphate of soda*, formerly called sal mirabile or Glauber's salt. By the action of sulphuric acid on common salt, sulphate of soda is readily produced. In this process the water of the sulphuric acid is decomposed, its hydrogen unites with the chlorine of the common salt and forms gaseous muriatic acid, while its oxygen going to the sodium forms soda. Then, further, the acid that has no water unites to soda to produce sulphate of soda.

998. Sulphate of soda is precipitated from its solution in regular crystals, which are transparent and when exposed to the air they effloresce. This is a very soluble salt. Its taste is saline and bitter. The principal use of this salt is in medicine and pharmacy. See Medicine and Pharmacy.

999. *A bi-sulphate* may be obtained by adding sulphuric acid to a solution of sulphate of soda while hot. It forms large rhomboidal crystals, which are soluble in twice their weight of cold water. There is a sulphite and a hyposulphite of soda.

1000. *Nitrate of soda.*—This may be formed either by distilling common salt with nitric acid, or by saturating the carbonate with nitric acid. This is the cubic nitre of former times; its taste resembles the nitrate of potassa, but it is sharper. This last salt (nitre) in its crude state often contains it. It has been suggested as an economical substitute for nitre in the making of fire-works.

1001. *Muriate of soda.* See sect. 993.

1002. *Carbonate of soda.*—This salt is principally obtained from marine plants, the ashes of which by lixiviation afford the impure alkali called soda. Barilla and kelp are the two forms in which the impure soda of commerce is met with. The latter consists of the ashes of sea weed, while the former is the ash of the salsola soda. These substances are contaminated by muriate of soda and other impurities, from which they may be separated by solution, filtering, and recrystallising.

1003. *Carbonate of soda* is an efflorescent salt, it has a large portion of water of crystallisation, it has a strong alkaline taste, and changes vegetable blues into green.

1004. *Bi-carbonate of soda* is formed by passing carbonic acid through a solution of the carbonate, or by adding carbonate of ammonia to it. This salt has a much weaker alkaline taste than the carbonate, and it requires a considerably larger proportion of water for its solution.

1005. Mr. R. Phillips has analysed a substance found near Fezzan in Africa, which occurs there native in great abundance, and which is called trona. He found it to be a compound intermediate between the carbonate and bi-carbonate, and he hence terms it a sesqui-carbonate of soda. See Quarterly Journal, vii. p. 298. In the same Journal, i. p. 188, will be found an account of a very productive soda lake in South America.

1006. *Chlorate of soda.*—By adding chloric acid to carbonate of soda, this salt may be formed. It is not unlike, in its general character, the chlorate of potassa.

1007. *Iodate of soda* is formed by adding iodine to a solution of soda; an hydriodate is produced at the same time; which may be separated by alcohol. Iodide of sodium is formed from these salts by treating them with heat.

*1007. *Phosphate of soda* may be procured by saturating phosphoric acid with carbonate of soda, evaporating and crystallising. There seems to be some discrepancy in opinion with respect to the proportions with which the phosphoric acid enters into combination with soda. Of phosphite and hypo-phosphite of soda very little is at present known.

1008. *Borate of soda.* (*Borax*).—This salt is brought from India in a crude state, under the name of tincal; when it is purified it becomes the refined borax of the shops; and when it is deprived of its water of crystallisation, it forms a white powder, and at length, on increasing the heat, it is changed into the glass of borax. The crystallised and purified salt is soluble in twenty parts of water at 60°, and in six parts of boiling water. Borax has a place in the Pharmacopœia. See MEDICINE and PHARMACY.

1009. The selenic and prussic acids form distinct salts with soda.

1010. *Sodium and sulphur.*—A sulphuret of sodium may be formed by treating sulphate of soda with charcoal; and hydro-sulphuret is produced in several of the processes by which soda is separated from its sulphate.

LITHIUM.

1011. In analysing a mineral which goes under the name of petalite, a very small quantity of an alkali was found in it by M. Arfwedson, which he supposed at first to be soda. But, upon further investigation, he found that it was dissimilar to soda in some of its properties, more especially in the power it possessed of neutralising much more acid. To this new principle then the name of lithion was given, deduced from its mineral or stony origin, and this term has since been changed into lithium.

1012. It has since been ascertained that the principle exists in a somewhat larger proportion in the mineral called triphane or spodumene. It has also been detected in some others.

1013. The most direct way of extracting it is to fuse the mineral, reduced to a fine powder, with two or three times its weight of carbonate of potassa, to dissolve this fused mass in muriatic acid, evaporating to dryness: then to digest the dried mass in alcohol, which dissolves but little else than the muriate of lithia, which is obtained pure by dissolving and evaporating it a second time. This muriate is now to be digested with carbonate of silver, which forms a carbonate of lithia, and this carbonate may be decomposed by lime or baryta as are other carbonates.

1014. Other and more economical ways have been proposed of preparing lithia, one of which is to mix the mineral, from which it is procured, with twice its weight of fluor spar powdered, then to heat the mixture in sulphuric acid until the fluoric acid, with the silica, shall be volatilised; a sulphate of lithia is in this way formed, which may be decomposed.

1015. When this substance (lithia) is submitted to the action of the voltaic influence it is decomposed, in the same manner as is potassa and soda; but it again, after reduction, unites so rapidly with oxygen, that it has been found impossible to collect the metallic base or lithium, so as to ascertain its properties. The proportions of its combination with oxygen are of course likewise still unsettled.

1016. *Lithium with chlorine.*—Chloride of lithium is to be obtained by evaporating the muriate of lithia, and then fusing the dried residue. This is an extremely deliquescent substance, herein differing from the chlorides of potassium and sodium; it is white and semitransparent; it is decomposed when subjected to a high heat in the open air, parting with its chlorine, imbibing oxygen, and acquiring alkalescent properties. It moreover tinges the flame of a red color, and is crystallisable with considerable difficulty, all properties marking its distinction from potassium or sodium.

1017. *Sulphur and lithium.*—Sulphuret of lithium appears capable of being formed in the same manner as a sulphuret of potassium.

1018. *Salts of Lithia.—Sulphate of lithia* forms crystals of small prisms, which are white and shining; it has a saline but not bitter taste. A bi-sulphate is produced by adding an excess of acid to the sulphate. This is a more fusible and less soluble salt than the neutral sulphate.

1019. *Nitrate of lithia.*—The crystals of this salt are rhomboids; it is deliquescent and fusible; it has a cooling taste.

1020. *Muriate of lithia* does not appear to be a crystallisable salt.

1021. *Carbonate of lithia* is alkaline, efflorescent and fusible. When fused on platinum, it acts powerfully upon that metal.

1022. *Phosphate of lithia.*—This may be obtained by adding phosphoric acid to the sulphate mixed with ammonia. It is insoluble in this menstruum, and is therefore precipitated.

CALCIUM.

1023. Calcium, as its name indicates, is procured from lime. When this substance is negatively electrised, in contact with mercury, an amalgam of mercury, with a white metal, is obtained, which metal is calcium. But at present our knowledge of this metal is very imperfect, from the great difficulty of separating its mercurial amalgam, and from the rapidity with which it again unites with the oxygen that has been torn from it in the process of reduction. It appears, however, that lime is formed of nine parts of this metallic base, united to 7·5 parts of oxygen, so that its representative number will be = 26·5.

Lime. (Calx).

1024. This substance, in its carbonated state, is a very abundant product of nature. Marble, limestone, chalk, are all carbonates of lime; and the shells of crustaceous animals are formed, in a very considerable measure, of this material.

1025. Lime may be freed from its carbonic acid, and obtained in a state of purity, by exposing one of its carbonates to the process of calcination; but, to obtain it absolutely free from all impurities, white marble should be dissolved in diluted muriatic acid, a small quantity of ammonia added, and the solution filtered; then carbonate of ammonia is to be added, which will cause the precipitation of the lime, which is to be washed and exposed to a white heat.

1026. Lime is of a grayish color; it is caustic, and converts vegetable blues to green. It is difficult of fusion. Exposed to air it absorbs water and carbonic acid, and passes from a gray to white.

1027. When water is poured upon lime, it becomes immediately hot, and is converted into a white powder. Every one is familiar with the process of slaking lime, and the disengagement of heat and vapor that takes place in that process. Now slaked lime is a hydrate of lime, or, more strictly speaking, a proto-hydrate; the water, however, of this hydrate is not very forcibly retained, for it may be expelled by a strong heat, and leave the lime dry and pure.

1028. The disengaged heat is consequent upon part of the water, which enters into combination with lime, assuming a solid form; and it is supposed in this state to pass into a more solid condition than that of ice, for it gives out more caloric than does the same quantity of water in becoming ice; and even ice itself, when entering into combination with lime, evolves heat.

1029. Lime is but sparingly soluble in water, and, what is very curious, it dissolves more readily and copiously in cold than in hot water; and Mr. Dalton has made it probable that ice would take up twice as much lime as boiling water. Its water solution tastes acid; it turns vegetable blues to green, and unites with oil into a saponaceous compound.

1030. Lime water is prepared by pouring sufficient quantity of water on a mass of lime to form it into a thin paste; then more is to be added, and the mixture stirred or shaken during the addition. When the lime has settled, the clear liquor is to be decanted off for use, and kept in closely stopped vessels. The quantity of water that is used is not of much consequence, provided more lime is used than the water will dissolve.

1031. *Oxygen and calcium.*—For the reasons above stated, with respect to the habits of calcium in reference to oxygen, it is not very easy to predicate the degrees with which oxygen unites with the metal.

1032. *Chlorine and calcium.*—If we heat lime in chlorine, oxygen is evolved, and a chloride of calcium is formed. The same effect is produced by evaporating muriate of lime. Indeed the chloride of calcium and muriate of lime are mutually convertible, by adding or subtracting water. The chloride has a strong attraction for water: deliquescing with considerable rapidity, and forming an oily kind of solution, which has been called oil of lime. This solution is a muriate of lime. It crystallises at the temperature of 32°. One of the most powerful of our frigorific mixtures is composed of these crystals with snow. The salt is very soluble in alcohol, and during the solution much heat is extricated.

1033. *Iodide and calcium. (Iodide of calcium.)*—This is to be obtained by evaporating the hydriodate of lime to dryness, and strongly heating the residue. It is a white fusible compound.

1034. *Calcium and sulphur. (Sulphuret of calcium).*—This has been formed by causing hydrogen gas to pass over red-hot lime; and Berthier obtained it by subjecting anhydrous sulphate of lime to a powerful heat with charcoal.

1035. *Phosphorus and calcium.*—To prepare the phosphuret of calcium, we have the following directions in Dr. Henry's Elements: 'Take a glass tube about twelve inches long, and one-third of an inch in diameter, sealed hermetically at one end. Let this tube be coated with clay, except within about half an inch of the sealed end. Put first into it a drachm or two of phosphorus, cut into small pieces, and then fill the tube with small bits of fresh burnt lime, of the size of split peas. Stop the mouth of the tube loosely with a little paper, in order to prevent the free access of air. Next heat to redness that part of the tube which is coated with clay, by means of a chafing dish of red hot charcoal; and when the lime may be supposed to be ignited apply heat to the part containing the phosphorus, so as to sublime it, and to bring the vapor of it into contact with the heated lime. The phosphorus will decompose the lime, and will form with the calcium a compound of a reddish-brown color.' This compound has been erroneously termed phosphuret of lime; it is, in fact, a phosphuret of calcium.

Salts of Lime.

1036. *Chloride or oxymuriate of lime.*—Chloride or oxymuriate of lime has been abundantly made use of as a bleaching material; it is formed by passing chlorine into proto-hydrate of lime, which has been finely powdered. This substance has been called bleaching powder.

1037. *Chlorate of lime* is most easily produced, by dissolving carbonate of lime in chloric acid. The product is a deliquescent compound, which has a sharp, bitterish taste. It is capable of being formed into a chloride by the action of heat, oxygen gas being evolved.

1038. *Iodate and hydriodate of lime.*—Of these salts the first is of very difficult solution, requiring several hundred times its weight of water to dissolve it. When subjected to a strong heat, it gives off both oxygen and iodine, its base remaining. The second is very deliquescent, and when dried it becomes an iodide of calcium.

1039. *Nitrate of lime* is a deliquescent salt, it is found abundantly in old plaster and mortar, and nitrate of potassa is sometimes procured from it by the addition of carbonate of potassa. It may be artificially formed by diluting nitric acid with five or six parts of water, then saturating this solution with carbonate of lime, and afterwards crystallising. When this salt is fused, it concretes on cooling into a mass called, after its discoverer, Baldwin's phosphorus. This must be broken into pieces, and kept in a well closed phial.

1040. *Carbonate of lime.*—It has already been stated that this substance is abundantly formed by nature: indeed it is 'the most abundant compound of this earth,' and we shall take the liberty of extracting that author's account of it, whose words we have just quoted.

1041. 'Carbonate of lime,' says Mr. Brande, 'is the most abundant compound of this earth. When lime water is exposed to air, it becomes covered with an insoluble film of carbonate of lime, and hence is an excellent test of the presence of carbonic acid. But excess of carbonic acid redissolves the precipitate, producing a super-carbonate. Carbonate of lime is precipitated by the carbonated alkalis from solutions of muriate, nitrate, and sulphate of lime. Exposed to a red heat the carbonic acid escapes, and quicklime is obtained. It consists of

26·5 lime.
20·7 carbonic acid.
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47·2

1042. Carbonate of lime occurs in nature in great abundance, and in various forms. The primitive form of crystallised carbonate of lime, or calcareous spar, is an obtuse rhomboid of 105° 5′, and 74° 55′. Its specific gravity is 2·7. It occurs in every kind of rock, and its secondary forms are more numerous than those of any other substance; sometimes it forms fine stalactites, of which some of the caverns of Derbyshire furnish magnificent specimens; it is here deposited from its solution in water, acidulated by the carbonic acid, and substances immersed in this water become incrusted by carbonate of lime, when the excess of acid flies off, as seen in the petrifying well of Matlock. A fibrous variety of carbonate of lime, called satin spar, is found in Cumberland.

1043. Another variety, originally found in Arragon in Spain, has been termed Arragonite; it occurs in six-sided crystals, of a reddish color, and harder than the common carbonate. There is an acicular or fibrous variety found in France and Germany, and the white radiated substance improperly called flos ferri is also regarded as of the same species. Some varieties contain about three per cent. of strontia.

1044. All the varieties of marble and limestone consist essentially of carbonate of lime; of these, white granular limestone, or primitive marble, is most esteemed. There are also many colored varieties of extreme beauty. It is distinguished from secondary limestone by the absence of all organic remains, by its granularly foliated structure, and by its association with other primitive substances.

1045. The most celebrated statuary marble is that of Paros, and of Mons Pentelicus, near Athens; of these some of the finest specimens of ancient sculpture are composed. The marble of Carrara, or Luni, on the eastern coast of the gulf of Genoa, is also much esteemed; it is milk white, and less crystalline than the Parian.

1046. Many beautiful marbles for ornamental purposes are quarried in Derbyshire, and especially the black marble called also lucullite. Westmoreland and Devonshire also afford beautiful varieties; and in Anglesey a marble intermixed with green serpentine is found, little inferior in beauty to the verd antique.

1047. Among the inferior limestones we enumerate many varieties, such as common marble, bituminous limestones, abundant upon the Avon, near Bristol, and known under the name of swine-stone, or stink-stone, from the peculiar smell which it affords when rubbed. Oolite or roe-stone, of which the houses of Bath are built, and its variety called Portland stone. Pisolite consists of small rounded masses, composed of concentric layers, with a grain of sand always in the centre; and lastly chalk and marl.

1048. All these substances are more or less useful for ornamental purposes, or for building; they afford quick-lime when burned, and in that state are of great importance as manure, and as ingredients in the cements used for building. There is a great variety of limestones used for burning into quick-lime, and, generally speaking, any of the varieties may be used which neither fuse nor crumble into powder at the temperature required to expel the carbonic acid, which is a full red heat.

1049. *Borate of lime.*—The composition formed by adding a solution of boracic acid to lime-water is white, insipid, and sparingly soluble.

1050. *Fluate of lime.*—Pour concentrated sulphuric acid on the substance called fluor spar, and fluoric acid is expelled in the form of gas Hence this mineral is known to be formed in a great measure of fluoric acid, united to calcium. The fluate of lime, as a principle, has not hitherto been obtained in an insulated state.

1051. *Phosphate of lime.*—This is a principal ingredient in the bones of animals. It may be produced artificially by mixing solutions of phosphate of soda and muriate of lime; or by dissolving bones, which have been calcined and rubbed down to powder, in diluted muriatic acid.

1052. A bi-phosphate may be procured by digesting the phosphate in phosphoric acid; and, according to the investigations of Mr. Dalton, a tri, octo and dodico-phosphate are procurable. Dr. Thomson's quadri-phosphate, or glacial phosphoric acid, Mr. D. believes to be an octo-phosphate.

1053. *Sulphate of lime* occurs native in gypsum, plaster, stone, &c. It may be formed artificially by adding to the carbonate a sufficient quantity of sulphuric acid. The crystallised form of it, when it has lost its water of crystallisation and fallen into a white powder, is called plaster of Paris. This becomes soon solid after it has been made into a paste with water.

1054. As we trespassed a little upon our proportional limits to present Mr. Brande's account of the native carbonate of lime, so in the present instance we shall do the same; this, as well as the carbonate, being a beautiful and interesting product of nature.

1055. '*Native sulphate of lime*,' says Mr. B, 'occurs in various forms. The crystallised variety is usually called selenite; the fibrous and earthy, gypsum; and the granular or massive, alabaster. The primitive form of selenite is a rhomboidal prism of 113° 8', and 66° 52'. The crystals are commonly transparent and of various colors; it is softer than native carbonate or carbonate of lime, and yields very easily to the nail. It is seldom found in veins, but generally disseminated in artificial strata. It occurs in Cumberland, at Alston, and in Oxfordshire, at Shotover Hill, where it is often accompanied by shells and pyrites, and appears to have resulted from their mutual decomposition. A beautiful fibrous variety is found in Derbyshire, applicable to ornamental purposes.

1056. Massive and granular gypsum is found in this country, accompanying the salt deposits in Cheshire. It abounds in Montmartre, near Paris, and contains organic remains; sometimes it forms entire hills. In the Tyrolese, Swiss, and Italian Alps it is found upon the primitive rocks, often of the purest white, especially at Moutier, near Mont Blanc, and near the summit of Mount Cenis. It is turned by the lathe, and sculptured into a variety of beautiful forms, more especially by the Florentine artists.

1057. There is a variety of sulphate of lime which has been called anhydrous gypsum, or anhydrite, in reference to its containing no water It is harder than selenite, and sometimes contains common salt, and is then called muriacite. It is rarely crystallised, generally massive and lamellar, and susceptible of division into rectangular

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The artificial sulphate is used as a paint, under the name of permanent white.

1066. *Sulphite* and *hypo-sulphite* of baryta may be formed, the first by mixing sulphite of potassa with muriate of baryta, the next by adding muriate of baryta to a solution of hyposuphite of lime. The first is an insoluble compound; the last but slightly soluble.

1067. *Nitrate of baryta* may be formed by dissolving the carbonate in nitric acid, evaporating and crystallising. The taste of this salt is acrid, and in a degree astringent. It is decomposed by a bright red heat, and by this decomposition a pure baryta may be obtained.

1068. *Carbonate of baryta.*—The earth baryta when pure has a very powerful affinity for carbonic acid, so that the carbonate is easily formed. It is a salt nearly insoluble in water; it is tasteless, but acts as a virulent poison. The substance called witherite, (from its discoverer, Dr. Withering,) is a native carbonate of baryta.

1069. *Chlorate of baryta* may be directly formed; that is by the union of chlorine gas with a solution of pure baryta. The taste of this salt is highly pungent.

1070. *Hydriodate and iodate of baryta.*—The first is a crystallisable and very soluble salt. The second is exceedingly insoluble: if this hydriodate be evaporated and ignited, an iodide of barium is formed.

1071. *Phosphate of baryta.*—Phosphoric acid and baryta combine in several proportions, forming neutral phosphate, bi-phosphate, and sesquephosphate.

1072. *Phosphite of baryta.*—This combination of phosphorus acid with baryta may be obtained by mixing muriate of baryta with phosphate of ammonia.

1073. *The borate of baryta* is a white and insoluble powder: it has not been particularly investigated.

1074. *Barium and chlorine.*—Chloride of barium. This may be formed by heating pure baryta in chlorine gas, or by dissolving its carbonate in diluted muriatic acid. 'When filtered and evaporated the solution, which contains muriate of baryta, not chloride of barium, yields regular crystals of the former salt, which have most commonly the shape of tables, bevelled at the edges, or of eight-sided pyramids, applied base to base. These crystals dissolve in five parts of water, at 60°, or in a still smaller quantity of boiling water, and also in alcohol. They are not altered by exposure to the atmosphere; sulphuric acid detaches the baryta, and the salt is also decomposed by alkaline carbonates and sulphates. When the crystals are exposed to a red heat they are converted into chloride of barium.' *Henry.* See CHLORINE.

1075. As of lime so of baryta, a ferro-cyanate and seleniate may be formed.

Nearly all the compounds with baryta, as a base, are poisonous, and may be formed in the same manner. It also occurs native in considerable quantities. It is found, as well as the carbonate, at Strontian in Scotland, and in the vicinity of Bristol, as well as at Montmartre near Paris. Strontia, like baryta, has a stronger affinity for sulphuric acid than have any of the alkalis. Sulphite and hypo-sulphite may be formed with the sulphurous acid.

STRONTIUM.

1076. This metal is produced from strontia, as barium is from baryta. It somewhat resembles barium in its external appearance, and, like it, is converted soon into strontia by exposure to the oxygen of the air.

1077. *Strontia.*—Oxide of strontium may be formed either by subjecting the carbonate to a strong heat in the open air, or by igniting the nitrate of strontia in a close vessel. The crystals of this salt have much the same habits and susceptibilities as those of baryta; but there is a difference in the form of the crystals; those of strontia, too, contain more combined water than those of baryta, and they are less soluble.

1078. *Strontium and chlorine.*—Chloride of strontium may be formed either by dissolving the carbonate in the muriatic acid, and heating to dryness, or by directly subjecting strontia to the action of chlorine gas. This chloride is converted into muriate of strontia by subjecting it to the action of water, and then crystallising; these salts are reconverted into a chloride by being exposed to a red heat.

1079. *Strontium and iodine.*—Iodide of strontium is formed like iodide of barium, by heating the hydriodate in a close vessel.

1080. *Strontium and sulphur.*—Sulphuret of strontium. This may be formed by subjecting the powdered sulphate of strontia to a red heat with charcoal, or by directly fusing the strontia with sulphur. Solution in water converts this sulphuret into a hydro-sulphuret, and hydrogureted sulphuret of strontia.

1081. *Sulphate of strontia.*—This salt has a considerable resemblance to sulphate of baryta.

1082. *Nitrate of strontia.*—This salt may also be obtained in the same manner as the nitrate of baryta. Its crystals communicate to the flame of a candle a deep red color; and it is the salt which is employed at the theatres in the red fire.

1083. *Carbonate of strontia.* The habits of this earth, strontia, with carbonic acid, are considerably like those of baryta. This carbonate is found, as we have just stated, native in Argyllshire. It was first discovered at Strontian in that county in 1787. Its color is greenish, and it occurs in crystals and in radiated masses.

1084. *Phosphate of strontia* may be formed by mixing muriate of strontia and phosphate of soda. It is tasteless and insoluble in water, but soluble in an excess of phosphoric acid. A biphosphate may be formed of strontia.

1085. *Borate of strontia* was formed by Dr. Hope. It is a white powder, changes syrup of violets to a green, and is soluble in 130 parts of water.

1086. *Seleniates of strontia* are two; the neutral and the bi-seleniate. There is also a ferro-cyanite of strontia.

1087. It will have been observed that there exists a considerable resemblance between strontia and baryta, both in appearance and habits. As this circumstance has led to some confusion in analysis, we give the following extract from Mr. Brande on this subject.

1088. The following are some of the most striking points of resemblance. They are both found native in the states of sulphate and carbonate only; both sulphates are soluble in excess of sulphuric acid, and nearly insoluble in water; they are decomposable by similar means, as well as the native carbonates; they are both crystallisable from their hot aqueous solutions, and both attract carbonic acid. The carbonates are each soluble with effervescence in most of the acids; but the native carbonates are not so easily acted upon as the artificial. Pure ammonia precipitates neither the one nor the other.

1089. The following are essential distinctions. Baryta and all its salts, except the sulphate, are poisonous. The corresponding strontitic salts are innocent. Baryta tinges flame, yellow: strontia, red. Strontia has less attraction for acids than baryta, since the strontitic salts are decomposed by baryta. The greater number of the barytic salts are less soluble than those of strontia; and they differ in their respective forms and solubilities. Pure baryta is ten times more soluble in water than pure strontia.

MAGNESIUM.

1090. This metal can hardly be said to have been demonstrated; but when the earth of magnesia is negatively electrised with quicksilver, the resulting compound decomposes water, and occasions the formation of magnesia. In one experiment of Sir H. Davy, for the purpose of obtaining the metallic base of magnesia, a solid was obtained, which, from its whiteness and lustre, appeared evidently metallic. 'It sank rapidly in water, though surrounded by globules of gas, producing magnesia, and quickly changed in air, becoming covered with a white crust, and falling into a fine powder, which powder proved to be magnesia. He afterwards, by passing potassium over magnesia, at a high temperature, and introducing quicksilver into the tube while hot, obtained an amalgam, which was deprived of its potassium by the action of water. It then appeared as a solid white metallic mass, which, by exposure to the air, became covered with a dry white powder, and, when acted on by weak muriatic acid, gave off hydrogen gas in considerable quantities, and produced a solution of magnesia.' *Philosophical Transactions*, 1808, 1810.

1091. Magnesia then is considered an oxide of magnesium. It may be obtained pure by exposing its carbonate to a red heat. It is a well-known substance, white, and almost tasteless; it possesses, in some measure, the properties of an alkali, but it does not, like the other alkaline earths, absorb moisture or carbonic acid from the air. It appears, however, to have an affinity for water, and it combines with it under some circumstances, so as to constitute a hydrate. Water, however, having been agitated with magnesia, and filtered through paper, does not, as in the case of lime-water, manifest the properties of the substance itself.

1092. Magnesia, in a state of impurity or admixture, is by no means a rare production of nature; it forms a considerable portion of what is called magnesian lime-stone, serpentine, &c.

It has not hitherto been much employed, except in medicine.

1093. *Chlorine and magnesium.*—The compound formed by heating magnesia in chlorine gas, and which is a chloride of magnesia, is not much known. The chloride of magnesium may be formed by mixing chloride of lime with sulphate of magnesia. The chlorate of magnesia is a bitter deliquescent salt, but not much known.

1094. *Muriate of magnesia.*—This is met with in some of the mineral waters, as well as in sea-water. It cannot like some of the other muriates be converted into a chloride of the base, since exposure to strong heat occasions a dissipation of part of the acid. Hydriodate of magnesia is a deliquescent salt, and also loses its acid by exposure to heat. When iodine is heated along with magnesia and water, both hydriodate and iodate of magnesia are formed. By concentrating the solution both salts are partly decomposed, and a flocculent iodide of magnesia is formed, resembling kermes in appearance, which when heated loses part of its iodine, and is changed into a sub-iodide. *Henry.*

1095. *Nitrate of magnesia* is formed by dissolving the carbonate in diluted nitric acid. It is a crystalline salt, and has a cooling and bitter taste. The ammonio-nitrate may be obtained by mixing the solutions of nitrate of magnesia and nitrate of ammonia. This salt is less deliquescent than its components are separately.

1096. *Carbonate of magnesia* is usually formed by adding a carbonated alkali to sulphate of magnesia. It is a white, tasteless, insoluble powder, and the carbonic acid is expelled from it at a red heat; the residuum being calcined or pure magnesia. It appears that the carbonate of magnesia, is not a fully saturated carbonate, but that what has been generally considered the bicarbonate, is in fact the true carbonate.

1097. *Borate of magnesia,* may be formed artificially. A native compound of boracic acid and magnesia is instanced in the mineral called boracite, which is found near Luneburgh.

1098. *Phosphate of magnesia* may also be formed artificially; and the ammonio-phosphate is produced by mixing solutions of phosphate of ammonia and phosphate of magnesia. This salt according to Fourcroy contains equal weights of phosphate of ammonia, phosphate of magnesia and water. It is tasteless and decomposable by heat, leaving as a residue only phosphate of magnesia and water.

1099. *Sulphate of magnesia.*—This salt is one of importance, were it only for its very extensive use in medicine. It was at one time procured from the springs of Epsom, and hence its common name, Epsom salts. It is generally upon a large scale obtained from sea-water, the residue of which, after the separation of common salt, is called bittern, which is a mixture of sulphate with muriate of magnesia; the latter is decomposed by sulphuric acid. It may be obtained by the direct admixture of pure magnesia with concentrated sulphuric acid.

1100. Sulphate of magnesia forms in crystals. It has a bitter taste: it is soluble in its own weight of water at 60° and when exposed to heat loses its water of crystallisation without decomposition. This salt is largely used in the formation of the carbonate of magnesia of the shops; carbonate of potass and sulphate of magnesia being mixed together in a heated state. The ammoniaco-magnesian sulphate is formed by adding a solution of pure ammonia to that of sulphate of magnesia. A compound sulphate of potassa and magnesia has been produced by saturating bisulphate of potassa with magnesia. This salt has a bitter taste, and is not much more soluble than sulphate of potassa.

1101. *A compound sulphate of magnesia and soda* has also been procured, which is soluble in rather more than three times its weight of water at 60°.

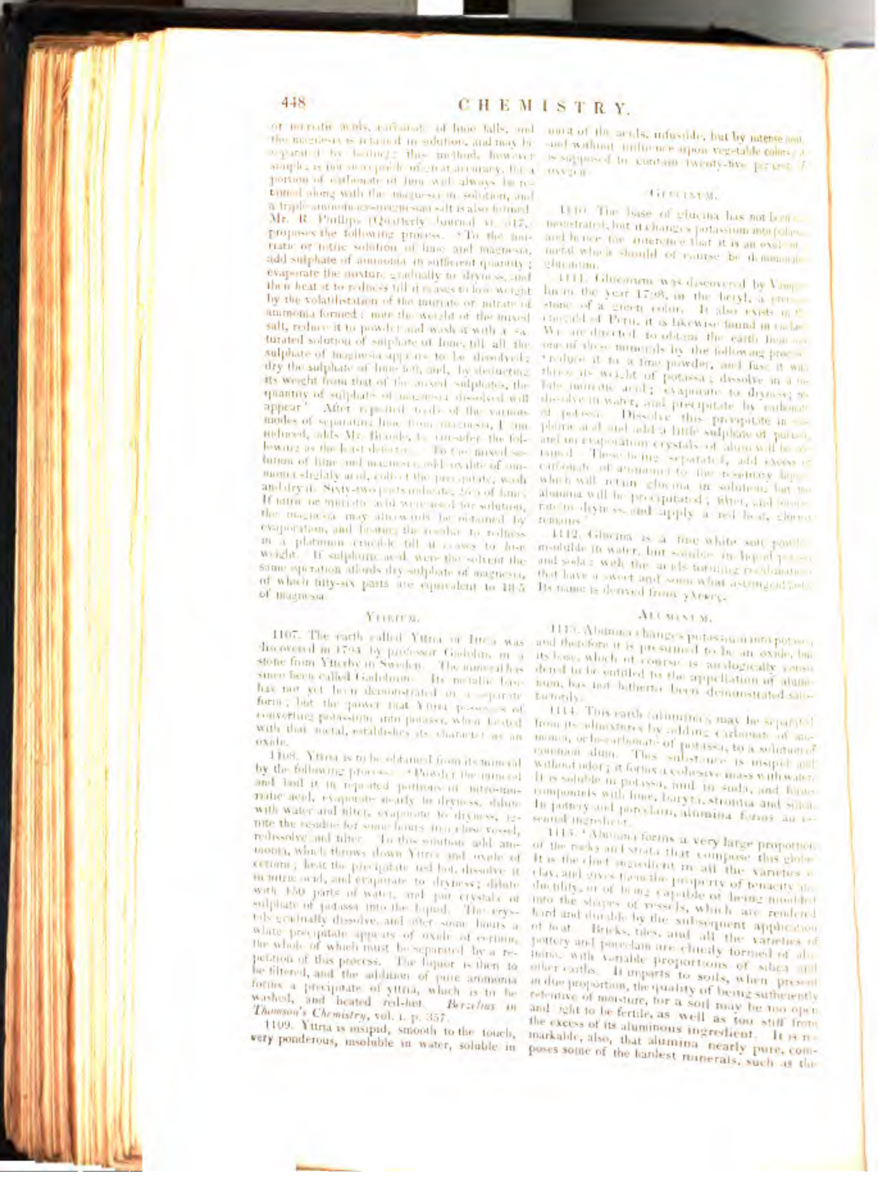
1102. *Sulphite of magnesia* may be procured by passing sulphurous acid into water, in which is diffused the carbonate of magnesia. 'The crystals into which this salt form effloresce in the air, and become slowly a sulphate. The hyposulphite may be obtained by heating a solution of the sulphite with flowers of sulpher. This is an exceedingly bitter salt, and freely soluble in water; but it is not deliquescent.

1103. *The sulphurets* of magnesia have not been much investigated.

1104. The selenic acid unites with magnesia in two proportions; but the compounds have not been found to possess much interest.

1105. 'The fossils which contain magnesia are generally soft and apparently unctuous to the touch; they have seldom either lustre or transparency, and are generally more or less of a green color. Steatite or soapstone, talc, and asbestos, may be taken as instances. The chrysolite also contains more than half its weight of magnesia. The mineral called bitter-spar, of which the finest specimens come from the Tyrol, contains forty-five per cent. carbonate of magnesia, fifty-two carbonate of lime, and a little iron and manganese. Its primitive crystal is a rhomboid nearly allied to that of carbonate of lime; its angles being 106° 20′, and 73° 80′. It is of a yellowish color, and a pearly lustre, semi-transparent and brittle. A variety found at Miemo in Tuscany has been called Miemite. The species of marble called dolomite found in the Alps, and in Icolmkill in Scotland, contains also a large quantity, generally forty per cent. of carbonate of magnesia. The same may be said of the magnesian lime-stone of Derby and Nottingham: it is generally of a yellowish color, and less rapidly soluble in dilute muriatic acid, than the pure lime-stones, whence the French have termed it, chaux carbonatée lente. The lime which it affords is much esteemed for cements; but for agricultural purposes it is often mischievous, in consequence of its remaining caustic for a very long time, and thus injuring the young plants.

1106. The separation of magnesia and lime, continues Mr. Brande, from whom we are now extracting, is a problem of some importance in analytical chemistry, as they often exist together in the same mineral, more especially in the varieties of magnesian lime-stone. When solution of carbonate of ammonia is added to the mixed solution of lime and magnesia in nitric



or muriatic acids, carbonate of lime falls, and the magnesia is retained in solution, and may be separated by boiling: this method, however simple, is not susceptible of great accuracy, for a portion of carbonate of lime will always be retained along with the magnesia in solution, and a triple-ammoniaco-magnesian salt is also formed. Mr. R. Phillips (Quarterly Journal xi. 317,) proposes the following process. 'To the muriatic or nitric solution of lime and magnesia, add sulphate of ammonia in sufficient quantity; evaporate the mixture gradually to dryness, and then heat it to redness till it ceases to lose weight by the volatilization of the muriate or nitrate of ammonia formed: note the weight of the mixed salt, reduce it to powder and wash it with a saturated solution of sulphate of lime, till all the sulphate of magnesia appears to be dissolved; dry the sulphate of lime left, and, by deducting its weight from that of the mixed sulphates, the quantity of sulphate of magnesia dissolved will appear.' After repeated trials of the various modes of separating lime from magnesia, I am induced, adds Mr. Brande, to consider the following as the least defective. To the mixed solution of lime and magnesia, add oxalate of ammonia slightly acid, collect the precipitate, wash and dry it. Sixty-two parts indicate 28·5 of lime. If nitric or muriatic acid were used for solution, the magnesia may afterwards be obtained by evaporation, and heating the residue to redness in a platinum crucible till it ceases to lose weight. If sulphuric acid were the solvent the same operation affords dry sulphate of magnesia, of which fifty-six parts are equivalent to 18·5 of magnesia.

Yttrium.

1107. The earth called Yttria or Ittria was discovered in 1794 by professor Gadolin in a stone from Ytterby in Sweden. The mineral has since been called Gadolinite. Its metallic base has not yet been demonstrated in a separate form; but the power that Yttria possesses of converting potassium into potassa, when heated with that metal, establishes its character as an oxide.

1108. Yttria is to be obtained from its mineral by the following process. 'Powder the mineral and boil it in repeated portions of nitro-muriatic acid, evaporate nearly to dryness, dilute with water and filter, evaporate to dryness, ignite the residue for some hours in a close vessel, redissolve and filter. To this solution add ammonia, which throws down Yttria and oxide of cerium; heat the precipitate red hot, dissolve it in nitric acid, and evaporate to dryness; dilute with 150 parts of water, and put crystals of sulphate of potassa into the liquid. The crystals gradually dissolve, and after some hours a white precipitate appears of oxide of cerium, the whole of which must be separated by a repetition of this process. The liquor is then to be filtered, and the addition of pure ammonia forms a precipitate of yttria, which is to be washed, and heated red-hot.' *Berzelius in Thomson's Chemistry*, vol. i. p. 357.

1109. Yttria is insipid, smooth to the touch, very ponderous, insoluble in water, soluble in most of the acids, infusible, but by intense heat, and without influence upon vegetable colors; it is supposed to contain twenty-five per cent. of oxygen.

Glucinum.

1110. The base of glucina has not been demonstrated, but it changes potassium into potassa, and hence the inference that it is an oxide of a metal which should of course be denominated glucinum.

1111. Glucinum was discovered by Vauquelin in the year 1798, in the beryl, a precious stone of a green color. It also exists in the emerald of Peru, it is likewise found in euclase. We are directed to obtain the earth from any one of these minerals by the following process: 'reduce it to a fine powder, and fuse it with thrice its weight of potassa; dissolve in a dilute muriatic acid; evaporate to dryness; redissolve in water, and precipitate by carbonate of potassa. Dissolve this precipitate in sulphuric acid and add a little sulphate of potassa, and on evaporation crystals of alum will be obtained. These being separated, add excess of carbonate of ammonia to the remaining liquor, which will retain glucina in solution, but the alumina will be precipitated; filter, and evaporate to dryness, and apply a red heat, glucina remains.'

1112. Glucina is a fine white soft powder, insoluble in water, but soluble in liquid potassa and soda; with the acids forming combinations that have a sweet and somewhat astringent taste. Its name is derived from γλυκυς.

Aluminum.

1113. Alumina changes potassium into potassa, and therefore it is presumed to be an oxide, but its base, which of course is analogically considered to be entitled to the appellation of aluminum, has not hitherto been demonstrated satisfactorily.

1114. This earth (alumina) may be separated from its admixtures by adding carbonate of ammonia, or bi-carbonate of potassa, to a solution of common alum. This substance is insipid and without odor; it forms a cohesive mass with water. It is soluble in potassa, and in soda, and forms compounds with lime, baryta, strontia and silica. In pottery and porcelain, alumina forms an essential ingredient.

1115. 'Alumina forms a very large proportion of the rocks and strata that compose this globe. It is the chief ingredient in all the varieties of clay, and gives them the property of tenacity and ductility, or of being capable of being moulded into the shapes of vessels, which are rendered hard and durable by the subsequent application of heat. Bricks, tiles, and all the varieties of pottery and porcelain are chiefly formed of alumina, with variable proportions of silica and other earths. It imparts to soils, when present in due proportion, the quality of being sufficiently retentive of moisture, for a soil may be too open and light to be fertile, as well as too stiff from the excess of its aluminous ingredient. It is remarkable, also, that alumina nearly pure, composes some of the hardest minerals, such as the corundum, which is hard enough to be employed in polishing diamonds.' *Henry*.

1116. *Alum*. (*Sulphate of Alumina*, or, more properly speaking, *sulphate of alumina and potassa*).

1117. This salt may be prepared by roasting and lixiviating certain clays which contain pyrites, adding some potassa. See Pharmacy.

1118. It has a sweetish taste, it reddens vegetable blues; when heated it swells up, loses its regular shape and appearance, and becomes what is called burnt alum. In this way, however, it seems that we cannot expel the whole of the acid. It dissolves in five parts of water at 60°, and, when ignited with charcoal, a spontaneously inflammable compound becomes formed, which is known by the name of Homberg's pyrophorus; a substance which is ordered to be prepared in the following manner:—'Mix equal parts of honey, or of brown sugar, and powdered alum in an iron ladle; melt the mixture over a fire, and keep it stirred till dry; reduce the dry mass to powder, and introduce it into a common phial coated with clay, and placed in a crucible of sand. Give the whole a red heat, and when a blue flame appears at the neck of the phial, allow it to burn about five minutes; then remove it from the fire, stop the phial and allow it to cool, taking care that air cannot enter it.'

1119. Alum is used pretty extensively in the arts of dyeing and calico printing. It is also employed in medicine.

1120. *Muriate and nitrate* of alumina may be formed by dissolving the purified earth in the acids; but we are informed by Sir H. Davy, that no substance exists which can be considered as a true compound of alumina and chlorine.

1121. Ammonia, soda, and magnesia may be made to unite with alum.

For further information on aluminous composition, see *Dr. Thomson's System*, and for an interesting account of aluminous, and silico-aluminous minerals, see *Brande's Manual*, vol. ii. p. 312.

THORINUM.

1122. The earth Thorina differs from alumina in being soluble in solution of potassa; from yttria by its astringent taste without sweetness, and by its neutral solutions affording a precipitate when boiled. From zirconia it differs in the following properties: 1st. after being heated to redness it is still soluble in acids. 2d. Sulphate of potassa occasions no precipitate in its solutions. 3d. It is precipitated by oxalate of ammonia. 4th. Sulphate of thorina crystallises while sulphate of zirconia does not. *Brande from Thomson.*

1123. We do not absolutely know from experiment that this earth is a metallic oxide, the inference that it is so is merely from analogy.

ZIRCONIUM.

1124. When potassium was brought into contact with zirconia heated, potassa was formed and dark metallic particles elicited.

1125. The earth was discovered by Klaproth in the precious stone called jargon or zircon. It has since been detected in the hyacinth. Its ordinary form is in reddish crystals; it is mixed in its native state with silica and a small quantity of iron. The pure earth is insoluble in water and in pure liquid alkalis, but soluble in the carbonates of these last. Its combinations with the acids into salts have not been much investigated.

SILICIUM.

1126. The experiments of Sir H. Davy, for the purpose of ascertaining the metallic base of the earth silica, were so far successful as that the phenomena produced left no doubt that like the other earths this also is an oxide; and Berzelius decomposed it by fusing it with charcoal and iron in a blast furnace, thus obtaining an alloy of iron and silicium.

1127. *Silica, or silicious earth*, is a very abundant product of nature. In flint and in rock crystal it exists almost pure. We may obtain it by calcining common gun flints, or by heating rock crystal to redness, adding water to it, and then reducing the quenched mass to a fine powder.

1128. When pure silica is white and tasteless it requires an intense heat for fusion. It readily unites with the fixed alkalis and forms glass. (See Aikin's Dictionary, see also the article Glass in this Encyclopædia). It is not acted on by any acid excepting the fluoric.

1129. Silica is of most important use in the manufacture of glass, and a certain proportion of it is employed in the composition of porcelain, in order to give a due hardness to the aluminous or clayey earth which constitutes the principal part of porcelain. Silica is an essential ingredient in fertile soils; it divides the other portions of which a soil may be constituted, and occasions the ground to be more porous. See the articles Soil and Agriculture.

We shall now present our readers with the following long but very useful tables from Dr. Ure, exhibiting at one view the habitudes, &c. of all the known metallic and earthy salts. It will be observed that both the bases, and the compounds, are placed in alphabetical order, so that the reader can at once refer to the substance, the form, composition, &c. of which he is desirous to ascertain.

1130. TABULAR VIEW OF SALTS,

Expressing their Form, Density, Solubility in Water, Habitudes with the Atmosphere, Composition, and Prime Equivalent.

SALTS OF ALUMINA.—Prime Equivalent 2.25—3·75 *Brande*; 3·375 *Phillips.*

Name.	Form.	Sp. Gr.	Solubil. in Water at		Action of Atmosphere.	Composition.			Prime Equivalent
			60°.	212°.		Acid.	Base.	Water.	
Acetate	Acicular	1.245		?	Deliquescent	21	4·5	25.5?	
Arseniate	Massive	?		0	?			?	
Benzoate	Dendritical	?		?	Deliquescent			?	
Borate	?	0		0				?	
Camphorate	Pulverulent	?	0·05		0			?	
Carbonate	?								
Fluate	Pulverulent	?		0				?	
Soda-fluate, or cryolite									
Gallate	Prisms								
Lactate	Gummy				0			?	
Malate	Pulverulent			0					
Mellate	Flaky powder				Deliquescent				
Muriate	Gelat. or powder		Very soluble		Deliquescent	29·8	30	40·2	
Nitrate	Soft plates	1·645	Very soluble		Deliquescent	56 with water,		44?	
Oxalate	Yellow mass								
Phosphate	Pulverulent			0					
Seleniate	Idem			0					
Suberate	Massive								
Succinate	Prisms								
Sulphate	Pearly plates	?	Very soluble		0	40	40.9 alumina.		
Do.	Pulverulent								
Sulph. of alum. and potash	Octohedrons	1·69	0·087	0·75	Efflorescent	20; (6.75 alumina, 6 potash), 28·125 water.			
Sulph. of alum. and soda	Octohedrons	1·6	1·1			20; 6·75 alumina, 4 soda, 28·125 water.			
Sulphite	Pulverulent			0					
Tartrate	Gummy mass		Very soluble		0				
Tartrate of pot. and alum.	Idem		Idem		0				
Tungstate	Pulverulent			0					
Urate, or lithate	Pulverulent								

and soda				0			
Sulphite	Octohedrous	1·69	0·087	0·75		40	40.9 alumina.
Tartrate	Pulverulent	1·6	1·1		Efflorescent		
Tartrate of pot. and alum.	Gummy mass		0			20; (6.75 alumina, 6 potash), 28·125 water.	
Tungstate	Idem		Very soluble			20; 6·75 alumina, 4 soda, 28·125 water.	
Urate, or lithate	Pulverulent		Idem		0		
	Pulverulent		0		0		

Salts of Ammonia.—Prime Equivalent 2·125.

Acetate	Acicular	?			Deliquescent	7	2·125		9·125
Arseniate	Four-sided rect. prisms								
Binarseniate	Acicular								
Arsenite	Gummy								
Benzoate	Plumose				Deliquescent				
Boletate	Flat four-sided prisms		0·38						
Borate	Like borax					37·95	30·32	31·73	
Camphorate	Opaque mass		0·01	0·33	Deliquescent				
Carbonate (sesqui)	Octohedral		0·33		Evaporates	8·25	4·25	2·25	14·75
Do. scentless, or bicarb.	Pulverulent				0	5·5	2·125	2·25	9·875
Chlorate	Acicular		Very soluble		Evaporates				
Chloro-carbonite	Pulverulent		Do.		Deliquescent	6·25	4·25		10·5
Chromate	Dendritical, yellow		Soluble						
Citrate	Long prisms		Very soluble			6·125	2·125	1·125	9·375
Ferro-prussiate	Yellow hexangular		Do.						
Fluate	Massive		Do.						
Fluoborate	Pulverulent					8·5	2·125		
Formate			Soluble		Volatile				
Hydriodate	Cubical		Very soluble		Deliquescent	15·625	2·125		17·75
Hydro-prussiate	Do. prismat. and plum.		Soluble		Evaporates				
Hydro-sulphuret	Acicular		Do.		Evaporates				
Hypo-phosphite			Very soluble						
Hypo-sulphite	Spicular mass		Do.			6	2.125		
Iodate	Small grains								
Lactate	Gummy mass								
Lithate	White powder								
Malate	Massive								
Meconiate	Acicular stars		0·66			40	42	18	
Mellate	Six-sided								
Molybdate	Semi-transparent mass		Soluble		Deliquescent	6·75	2·125	1·125	10·125
Muriate	Four-sided pyramidal	1·52	0·36		0	4·625	2·125		6.75
Nitrate	Six-sided prisms	1·58	0·5	2·0	Deliquescent	6·75	2·125	1·125	10·125
Oxalate	Four-sided prisms	1·582	0·045			4·5	2·125	2·25	8·875
Moroxylate	Long prisms		Soluble						
Phosphate	Octohedral	1·8	0·5		0				
Biphosphate	Prism with square bases					61·79	14·85	23·36	
Phosphite	Massive		Very soluble						
Purpurate	Quadrangular prisms		0·00066						
Pyrolithate	Silver-white plates		Soluble						

SALTS OF AMMONIA.—*Continued.*

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Seleniate	Four-sided prisms								
Suberate	Parallelopipeds		Very soluble		Deliquescent				
Succinate	Acicular		Do.						
Sulphate	Six-sided prisms		0·5	1·0	Deliquescent	5	2·125	3·375	10·5
Sulphite	Do. and four-sided		1·0		Deliquescent				
Sulphuroprussic	Massive		Very soluble						
Tartrate	Polygonous prisms		Do.						
Tungstate	Scales and four-sided needles		Soluble		0	15	2·125	2·25	19·375
SALTS OF ANTIMONY.—Prime Equivalent of Oxide 13.—6·5 *Thomson.*									
Acetate	Small crystals		Soluble						
Benzoate	Crystals		Do.		0				
Oxalate	Crystallised grains		Slightly soluble						
Succinate									
Tartrate	Gelatinous								
Tartrate of potash and ant.	Tetrahedrons		0·066	0·5	Efflorescent	44·2; 39·76 antimony; 16 potash.			
SALTS OF BISMUTH.—Prime Equivalent of Oxide 10.									
Acetate	Talky crystals		Soluble						
Arseniate	White powder		0						
Benzoate	Acicular		Soluble		0				
Carbonate	White powder		0						
Muriate	Small prisms								
Nitrate	Four-sided prisms		Decomposed		Deliquescent	34·2	48·8	17	
Phosphate	Crystals		Soluble		0				
Succinate	Yellow plates								
Sulphate	Acicular		Decomposed			100	197·5		
Acetate	Prismatic needles	1·828	0·88	0·96	0	35	58	7	
Antimoniate	White powder		0						
Antimoniate	Silky needles		Slightly soluble		0				
Arseniate	Powder		0		0	42·94	57·06		
Arsenite	Do.		0						

[illegible]									
[illegible]	[illegible]								
[illegible]	Gummy mass								
[illegible]	White powder		0						
Malate	White powder								
Mellate	Flakes								
Muriate	Tables	2·83	0·43	(at 100°)	0	4·5 chlorine	0·75 barium		13·25
Nitrate	Octohedrons	2·9	0·023;	0·25	0	0·75	9·75		16·5
Oxalate	Powder		0		0	31·62	68·38		
Phosphate	Do.	1·286	0		0	110	214·46		
Pyronitrate	Crystalline powder		0·006	0·02		4·09	56·1		
Sulphate, see Heavy Spar	Crystals	4·3	0		0	5	9·75		14·75
Sulphate	White powder	1·694	0		0	100	241·79	4·01	
Sulphuro-prussic	Slender prisms		Soluble		Deliquescent	100	234·9		
Tartrate	Granular crystals		Slightly soluble						

Salts of Cadmium.—Prime Equivalent of Oxide 8.

Acetate	Stellular prisms		Soluble	0			
Borate	White powder		0		27·68	72·11	
Carbonate	Do.		0		25·46	75·54	
Citrate	Do.		0				
Muriate	Rectangular prisms		Soluble	Efflorescent	38·6 chlorine	61·4 metal	
Nitrate	Prismatic rays		Soluble	Deliquescent	35·70	42·15	22·06
Oxalate	White powder		0				
Phosphate	Do.				30·71	69·29	
Sulphate	Rectangular prisms		Very soluble	Efflorescent	28·52	45·95	25·52
Tartrate	Small needles		Scarcely				

SALTS OF CERIUM.—Prime Equivalent of Oxide, 6·75.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°. 212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Granular crystals		Very soluble					
Benzoate	White powder							
Carbonate	Silvery grains		0		23	65	12	
Muriate	Four-sided prisms		Soluble	Deliquescent				
Nitrate	Crystals		Soluble					
Deutoxalate	Red powder		0					
Protoxalate	White powder							
Phosphate	Powder		0					
Deuto-sulphate	Octohed. and acicular		0	Efflorescent				
Tartrate	Powder		0					

SALTS OF COBALT.—Prime Equivalent of Oxid, 4·25.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°. 212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate			Very soluble	Deliquescent	52	14	33·3	
Antimoniate	Crystalline grains		Soluble					
Arseniate	Four-sided prisms		0	0				
Borate	Reddish powder		Scarcely					
Carbonate	Reddish-blue do		0					
Lactate	Crusts		0·026					
Muriate	Blue crystals		Very soluble	Deliquescent				
Nitrate	Red prisms		Soluble	Deliquescent				
Oxalate	Red powder		0		26	30	44	
Sulphate	Rhomboidal prisms		0·06					
Tartrate	Red crystals		Soluble					

SALTS OF COPPER.—Prime Equivalent of Oxide, 10.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°. 212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Binacetate	Four-sided pyramids	1·78	Soluble	0	14	10		24
Calcareous acetate	Eight-sided prisms		Soluble	0	28	10 oxide, 7 lime, 12·4 water.		19
Antimoniate	Green powder		0					
Arsenate	Pyramids and prisms		0					
Benzoate	Small crystals		Slightly	0				
Borate	Gelatinous		0	0				
Carbonate	Various		0	0	2·75	10		
Chlorate	Green mass		Soluble					

...Equivalent of Oxide, 10.

...ous acetate	...-sided pyramids				
Antimoniate	Eight-sided prisms	1·78	Soluble		
Arsenate	Green powder		Soluble	0	14 10
Benzoate	Pyramids and prisms		0	0	28 10 oxide, 7 lime, 12·4 water. 24 19
Borate	Small crystals		0		
Carbonate	Gelatinous		Slightly		
Chlorate	Various		0	0	
	Green mass		Soluble 0	0	

Chromate	Brown powder		0		
Citrate	Green crystals				
Ferro-prussiate	Brown powder		0		
Fluate	Blue crystals		Soluble		
Formate	Six-sided prisms	1·815	0·12	Efflorescent	32·7 35·4 31·9
Hypo-sulphite	Colorless mass		Soluble		
Muriate	Tetrahedrons		Soluble		26·42 73·58 orange oxide.
Deuto-muriate	Rectan. parallelopipeds	1·68	Very soluble	Deliquescent	40·2 59·8 black oxide
Nitrate	Parallelopipeds	2·174	Do.	Deliquescent	37·05 30·95 32 water.
Oxalate	Acicular		Soluble	0	
Ammonia-oxalate	Rhomboidal plates		0	0	47·5 25 oxide, 10·5 ammonia, 17 water
Do.	Flat six-sided prisms		Soluble	Efflorescent	36·0 39 16·29 8·71
Do.	Pulverulent			0	43 45·6 9·72 1·7
Potash-oxalate	Six-sided prisms		Soluble	Efflorescent	36·46 20·5 25 potash, 18
Do.	Rhomb. parallelopipeds		Do.		40·5 22·5 27 10
Soda-oxalate	Acicular four-sided prisms		0	0	46·5 23·5 oxide, 19 soda, 11 water.
Phosphate	Blue-green powder	1·4158	0		35 49·5 15·5 water.
Subnitrate	Pulverulent		0	0	18·9 66 15·1
Sulphate	4 sid. pyr. with 4 sid. prisms				
Bisulphate	Oblique parallelopipeds	2·2323	0·33	Efflorescent	31·4 32·3 36·3
Subsulphate	Green-powder		0		21·3 64·2 14·5
Sulphite of protoxide	Red crystals		0		32·2 56·8 11
Sulp. of copp. and potash	Yellow crystals				73·25 sulph. of copper, 12·68 sulph. potash.
Sulp. of amm. and copp.	Crystals				20 bisulph. cop. 7·125 sulph. am. 14·625 w.
Tartrate	Blue-green crystals				
Potash-tartrate	Blue crystals.				

SALTS OF GLUCINA.—Prime Equivalent 3·25.

Acetate	Gummy mass		Soluble		
Carbonate	White soft powder		0	0	
Chromate	Yellow mass		Soluble		
Cromo-sulphate	Dentritic crystals		Do.		
Nitrate	Pulverulent		Very soluble	Deliquescent	
Phosphate	White powder		0	0	
Succinate	Powder		0		
Sulphate	Gummy mass, or acicuar		Very soluble	Deliquescent	100 64·1
Bisulphate					100 32·1
Sesquisulphate					100 98·4

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	Solubil. in Water at 212°.	Action of Atmosphere.	Composition. Acid.	Composition. Base.	Composition. Water.	Prime Equivalent.
Salts of Gold.—Prime Equivalent of Oxide 28.									
Muriate (super)	4. sid. prisms and octohed. Yellow needles		Soluble						
Muriate (neutral)	Ruby-red mass		Do.		Deliquescent				
Nitrate	Brown liquid								
Soda-muriate	Crystalline		Soluble		0	69·3 chlor. of gold, 14·1 chlor. of sod., 16 6 w.			
Salts of Iridium.									
Muriate	Red crystallised mass, or octohedral crystals.		Soluble						
Salts of Iron.—Prime Equivalent of protoxide 4·5; of peroxide 5.									
Acetate	Green prisms	1·368	Soluble						
Acetate of peroxide	Gelatinous mass		Do.		Deliquescent				
Autimoniate	White or yellowish powder		0						
Arseniate	Powder and cubes	3	0			36	52	12	
Arseniate of peroxide	Brown-red powder					42·4	37·2	20·4	
Boletate of peroxide	Red powder		0						
Benzoate	Yellow powder		0						
Borate	Pale yellow powder		0						
Carbonate	Pulver. or in rhombs	3·33	0			36;	59·5 protoxide;	2	
Sub-carbonate	Pulverulent		0			24	76		
Citrate	White powder		Soluble						
Bicitrate	Crystalline powder								
Citrate of peroxide	Brown mass		Very soluble		Deliquescent				
Ferro-prussiate of protoxide	White powder								
Ferro-prussiate of peroxide	Blue powder		0						
Fluate	White powder		0						
Gallate of peroxide	Black powder		0						
Hypo-sulphite	Glutinous mass								
Lactate of protoxide	Four-sided needles		Scarcely		0				
Malate	Brown mass								
Molybdate	Brown powder		0						
Muriate	Flat rhomboidal plates		Solubie						
Muriate of peroxide	Orange mass		Very soluble		Deliquescent				

Nitrate	Liquid									
Nitrate of peroxide	Gelatinous or rectangular four-sided prisms		Very soluble			Deliquescent				
Oxalate	Prisms		Soluble				55	45 protoxide.		
Oxalate of peroxide	Yellow powder		Scarcely							
Phosphate	Blue powder, and in prisms	2·6		0			21	45 peroxide; 34 water.		
Phosphate of peroxide	White powder		Nearly insoluble							
Super-phosphate	Brown-red powder		Do.							
Succinate	Brown radiated crystals									
Succinate of peroxide	Brown-red powder			0			61·5 acid and water; 38·5 oxide.			
Sulphate	Green rhomboidal prisms	1·754	0·45				28·9	25·7	45·4	
Sulphate of peroxide.										
a. Neutral	White mass									
b. Sub-bisulphate	Red-yellow powder			0			20	80 peroxide.		
c. Deuto-sulphate	Octohedrons		Soluble				31·6	15·8	52·6 water.	
d. Trito-sulphate	Mass		Do.			Deliquescent	60	40		
Potash-sulphate	Green crystals		Do			Efflorescent				
Tartrate	Lamellar crystals									
Tartrate of peroxide	Red jelly									
Potash-tartrate	Crystals									
Tungstate, or Wolfram	Black powder					0				

Salts of Lead.—Prime Equivalent of Oxide 14.

Acetate	Rhomboidal prisms	2·345	0·27	0	·29		7	14	3·375	24·375
Trito-subacetate	Crystalline laminæ		Soluble				13·23	86·77		
Antimoniate	White powder			0						
Arseniate	Powder			0			35·7	64·3		
Benzoate	White crystals		Soluble				49·66	46·49	3·85	
Sub-benzoate							26	74·		
Borate	White powder			0						
Carbonate	Do. and crystallised	7·24		0			2·75	14		16·75
Citrate	Do.			0			34·18	65·82		
Chlorate	Crystalline plates		Soluble							
Chromate	Yellow powder and four-sided prisms	6		0			31·853	68·147		
Ferro-prussiate	White powder			0						
Fluate	Brilliant plates			0						

Salts of Lead.—*Continued.*

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Gallate	Crystalline powder		0			30·5	63·5		
Hydriodate	Orange-yellow		0						
Hypo-sulphite	White powder		0			29·7	70·3		
Lactate	Granular		Soluble						
Superlactate	Brown mass		Do.						
Sublactate	Yellow powder		Do.			17	83		
Malate	White powder or silver crys.		0						
Submalate	White powder		0						
Supermalate	Liquid		Soluble						
Molybdate	Yellow cubes	5·7	0			39·185	60·815		
Muriate	White powder, and small six-sided prisms	1·823	0·0459		0	24·83	75·17		
Submuriate	White or yellow powder								
Nitrate	Tetrahed. and six-sided pyr.	4		0·13		6·75	14		20·75
Subnitrate	Pearly scales		Soluble			100	412		
Nitrite	Yellow octohedrons		Do.			23·925	70·375	5·7	
Subnitrite	Yellow scales		0·0012	0·004		20 acid and water, 80 ox			
Sub-tetranitrite	Acicular stars		0·007	0·01		10	90		
Oxalate	Crystalline grains		Scarcely			24·5	75·5		
Phosphate	White powder		0			100	314		
Super-phosphate	Do.		0			100	230·6		
Subphosphate	Do.		0			100	472		
Nitro-phosphate	Small crystals								
Phosphite	White powder		0			19·7	80·22		
Pyrocitrate	Gelatinous mass		Soluble			33·4	66·6		
Pyromalate	Pearly needles		Do.						
Suberate	Powder		0						
Succinate	Foliated crystals		Scarcely			30·9	69·1		
Subsuccinate						13	87		
Sulphate	White powder and crystals	1·874	0			5	14		19
Sulphite	White powder		0			22·2	77·8		
Tannate	Powder					65·7	34·3		
Tartrate	White powder		0			37·5	62·5		
Potash-tartrate	Do.		0						

[illegible]	[illegible]							
Subsuccinate	Powder		Soluble					
Sulphate	Foliated crystals		Do.		19·7	80·22		
Sulphite			0		33·4	66·6		
Tannate	White powder and crystals		Scarcely					
Tartrate	White powder	1·874			30·9	69·1		
Potash-tartrate	Powder		0		13	67		
	White powder		0		[illegible]	[illegible]		

SALTS OF LIME.—Prime Equivalent 3·5.

Acetate	Prismatic needles	1·005	Soluble	0	7	14		21
Antimoniate	White powder		Sparingly		67	33		
Arseniate	Crystals		0					
Arsenite	White powder		0					
Benzoate	Pointed crystals		0·05					
Boletate	Flat four-sided prisms		0·009					
Borate	White powder		Scarcely					
Camphorate	White plates		0 0·008	Efflorescent	50	43	7	
Carbonate	Crystallised	2·7	0 0	0	2·75	3·5		
Chlorate	Mass		Very soluble	Deliquescent	9·5	3·5		
Chromate	Yellow silky plates		Soluble					
Citrate	White powder		0		68·83	31·17		
Ferroprussiate	Crystalline grains		Soluble					
Fluate	Cubes	3·15	0		1·25	3·5		4·75
Formate	Crystalline			0				
Gallate			Soluble					
Hydriodate			Very soluble	Deliquescent	15·625	3·5		
Hypophosphite			Do.					
Hyposulphate	Hexahedral plates							
Hyposulphite	Prisms		1·0	0	6	3·5	6·75	
Iodate	Quadrangular prisms		0·0022 0·0098		20·5	35 + 3 per cent. water		
Kinate	White rhomboidal plates		0·2		83 acid and water, 17 base.			
Lactate	Gummy mass		0·05					
Lithate	White powder		0					
Malate	Crystals		Scarcely					
Mellate	Gritty crystals							
Molybdate	Powder							
Moroxylate	Short needles		0·015 0·035	0				
Muriate	Six-sided striated prisms	1·76	4	Deliquescent	48·1	51·9		
Nitrate	Six-sided prisms, or needles	1·62	4	0	6·75	3·5		10·25
Oxalate	White powder		0	Deliquescent	56·25	43·75		
Phosphate	Do.		0		100	84·53		
Biphosphate	White mass		Soluble	Deliquescent				
Tetra-phosphate	Soft crusts							
Subphosphate	Six-sided prisms	3	0		100·125			
Purpurate			Scarcely					
Pyrocitrate	Acicular mass		0·04		66	34 + 30 per cent. water.		
Pyrolithate	Stalactites				91.4	8·6		
Suberate	Mass		Sparingly					

Salts of Lime.—*continued.*

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent
Succinate	Oblong pointed crystals		Very sparingly		0				
Sulphate	Octobedrons and prisms		0·0022		0	45·8	33·2	21 water	
Sulphite	Six-sided prisms		0·00125		Efflorescent	54·29	45·71		
Tartrate	White powder		0	0·0016		9·25	3·5		
Potash-tartrate	Crystals								
Tungstate	Octobedral	0	0		0	80·4	19·4		
Salts of Lithia.—Prime Equivalent 2·3.									
Acetate	Sub-crystalline mass		Soluble		Deliquescent				
Benzoate	Opaque mass		Do.						
Borate	Gummy mass		Do.		Deliquescent				
Biborate	Crystalline		Less soluole						
Carbonate	White powder		0·01			54·46	45·54		
Chromate	Yellow parallelopipeds		Soluble						
Gallate	Black mass		Do.						
Malate	Syrupy mass								
Muriate	Cube crystals		Soluble		Deliquescent				
Nitrate	Four-sided prisms		Do.		Do.				
Oxalate	Sub-crystalline		Do.						
Binoxalate	Crystalline		Do.						
Phosphate	White powder		0						
Biphosphate	Crystalline		Soluble						
Saclactate	Small crystals		Do.		Efflorescent				
Sulphate	Four-sided crystals		Do.		0	68·4	31·6		
Bisulpnate	Six-sided tables		Do.						
Tartrate	Opaque mass		Do.		Deliquescent				
Bitartrate	Crystalline		Do.						
Potash-tartrate	Rectangular four-sided prisms		Do.		0				
Soda-tartrate	Do.		Do.		0				
Tungstate	Oblique four-sided prisms		Do.						
Salts of Magnesia.—Prime Equivalent 2·5.									
Acetate	Viscid mass	1·378	Very soluble		Deliquescent	7	2·5		9·5
Arseniate	Gummy mass		0						
Benzoate	Plumose crystals		Soluble						
Borate	Small crystals and cubes	2·566	0		0	2·73	2·5		

Camphorate	Thin plates		Slightly					
Carbonate	White powder		Very slightly		0			
Carbonate (native)	Massive		0		0	2·75	2·5	
Chlorate	Mass		Very soluble		Deliquescent	9·5	2·5	14·3 per cent. water.
Chromate	Yellow six-sided prisms		Very soluble					
Citrate	Opaque soft mass		Do.			66·6	33·34	
Fluate	White powder		0					
Hydriodate	Crystalline mass		Soluble		Deliquescent	15·65	2·5	
Lactate	Granular crystals		Do.					
Malate	Crystals		0·036		0			
Molybdate	Mass		Soluble					
Muriate	Needles	1·6	2		Deliquescent	57	43	*Acid. Base.*
Nitrate	Rhomb. prisms and need.	1·736	1		Do.	43	27	30 (Dry, 6·75 2·5)
Oxalate	White powder		0			65	35	
Phosphate	Six-sided prisms	1·55	0·011		Efflorescent			
Ammonia phosphate	Four-sided prisms and white powder		0			33 phosph.-amm.; 33 phosph.-mag.; 33 wat.		
Suberate	Pulverulent		Soluble		Deliquescent			
Succinate	Frothy mass		Do.		Do.			
Sulphate	Quadrangular prisms	1·664	1	1·5	Efflorescent	38	18	44
Ammonia-sulphate	Octohedrons	1·696	Soluble		0	68 sulphate-magnesia; 32 sulphate-ammonia.		
Potash-sulphate	Rhomboidal crystals		Do.		0	3 sulphate-potash; 4 sulphate-magnesia.		
Soda-sulphate	Rhombs truncated		0·33		0	32 sulph.-mag.; 39 sulph.-soda; 28 water.		
Sulphite	Tetrah. and white powder	1·38	0·05					
Ammonia-sulphite	Crystals		Soluble					
Tartrate	Powder		0					
Potash-tartrate			Soluble		Deliquescent			
Tungstate	Brilliant scales		Do.		0			

SALTS OF MANGANESE.—Prime Equivalent of Oxide 4·5

Acetate	Rhomboidal tables		0·03	0	70 acid and water; 30 base.		
Antimoniate	White powder		Slightly	0			
Arseniate	Small crystals		0				
Benzoate	Thin prisms		0.05	0	76 acid; 24 base		
Carbonate	Yellow-white powder		0	0	2·75	4·5	
Chromate	Mass		Soluble				
Fluate	White powder		0	0			
Muriate	Long four-sided tables		Very soluble	Deliquescent			
Nitrate	White needles		Do.	Do.			

SALTS OF MANGANESE.—*Continued.*

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Oxalate	White powder		0		0				
Phosphate	Pulverulent		0		0				
Succinate	Four-sided prisms, or four-sided tables and octoh.		0·1			69·7 acid and water; 30·3 base.			
Sulphate	Rhomboidal prisms	2·877	0·31		0	33·66	31	35·34	
Deuto-sulphate	Red jelly		Soluble		Deliquescent				
Hypo-sulphate			Do.		Do.				
Tungstate	White powder		0		0				

SALTS OF MERCURY.—Prime Equivalent of Protoxide 26,—of Peroxide 27.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Brilliant plates		0·0016		0				
Deutacetate	Yellow mass		Very soluble		Deliquescent				
Arseniate	Do.		0		0				
Benzoate	White powder		0		0				
Borate	Yelllow powder	2·66	0						
Deuto-carbonate	White powder		0		0	2·75	27		
Chromate	Purple powder		0		0				
Citrate	Mass		Very little						
Deuto-fluate	Lamellar yellow crystals		Soluble						
Hydriodate	Greenish-yellow		0						
Deuto-hydriodate	Orange-red		0						
Lactate	White matter		Soluble						
Deuto-lactate	Red gummy mass		Do.		Deliquescent				
Malate	White powder		0						
Molybdate	White flaky powder		0						
Muriate (calomel)	Four-sided prisms	7·176	0		0	4·5 chlorine; 25 metal.			29·5
Deuto-muriate, or corrosive sublimate	Cubes, or rhomboidal prisms	5·14	0·05	0·5	0	9 chlorine; 25 metal.			34·0
Nitrate	White octohedrons		Soluble						
Deuto-nitrate	Crystalline mass		Do.		Deliquescent				
Oxalate	White powder		0						
Deuto-phosphate	Do.	4·98	0			28·5 acid; 71·5 peroxide.			
Saclactate	Do.		0						
Sulphate	White salt		Decomp. by wat.						

Deuto-nitrate Oxalate Deuto-phosphate Saclactate Sulphate	prisms White octohedrons Crystalline mass White powder Do. Do. White salt	5·14 4·00	0 0·05 0·5 Soluble Do. 0 0 0	0 0 Deliquescent	4·5 chlorine; 25 metal. 29·5 9 chlorine; 25 metal. 34·0
Deuto-sulphate	Yellow powder	6·44	0·0005 0·0016	0	15·6 acid; 84·4 peroxide
Tartrate	White or yellow salt		0		
Potash-tartrate	Small crystals		Soluble		
Tungstate	Powder		0		
SALTS OF NICKEL.—Prime Equivalent of oxide 4·25.					
Acetate	Green rhomboids		Very soluble		
Arseniate	Apple-green		Soluble		
Carbonate	Pulverulent		0	0	56·4 acid and water; 43·6 base.
Chromate	Pulverulent				
Muriate	Irregular green crystals		Soluble	Deliquescent	11 acid; 34 oxide; 55 water.
Nitrate	Rhomboidal crystals		Do.	Deliquescent	55 25 20
Ammonia-nitrate	Green crystals		Do.		
Oxalate	Green-white powder		Scarcely soluble		2 acid; 1 metal.
Phosphate	Pulverulent		0		
Sulphate	Four-sided rectang. prisms		Soluble	0	29 25·35 45·65
Ammonia-sulphate	Four-sided flat prisms		Do.		
Potash-sulphate	Emerald rhomboids		Do.		Sulph. nick. 34·5; sulph. pot. 40·5; 25 water.
Ferreous-sulphate	Green tables		Do.	Efflorescent	
SALTS OF PALLADIUM.					
Muriate	Red solution				
Ammonia-muriate	Liquid		Soluble		
Potash-muriate	Four-sided prisms		Do.		
Soda-muriate	Massive		Do.	Deliquescent	
Nitrate	Dark red liquid				
Prussiate	Yellow flocks		0		
SALTS OF PLATINUM.—Prime Equivalent of Oxide 14.15?—*Berzelius.*					
Muriate	Irregular crystals		Slightly soluble		
Potash-muriate	Small crystals		Soluble		Chlorine 65; metal 89·8; chloride of potas. 70.
Soda-muriate	Crystals		Do.		Mur. sod. 14·7; mur. plat. 42; water 13·5.
Sulphate	Blackish crust		Do.	Deliquescent	26·3 acid; 73·7 protox.
Ammonia-sulphate	Light-brown powder		0	0	Sulph. am. and water 30; oxide 70.
Barytes-sulphate	Brown powder		0	0	
Potash-sulphate	Blackish grains		0	0	Sulph. pot. 10·84; protox. 78·3; water 10·84.
Soda sulphate	Do.		0	0	Sulph. sod. 7·1; protox. 84; water 8·7.

Salts of Potash.—Prime Equivalent 6.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Plates and prisms		1		Deliquescent	7	6		13
Antimoniate	White powder		Scarce sol.	Sol.	0	79·2	20·8		
Antimonite	Do.					76·6	23·4		
Arseniate	Four-sided rectangular prisms	2·64	0·2		0	64	26	10	
Arsenite	Viscid mass		Very soluble		Deliquescent				
Soda-arseniate	Oblique prisms		Soluble			Arsen. pot. 54; ars. sod. 46.			
Sub-arseniate	Mass		Very soluble		Deliquescent				
Benzoate	Plumose crystals		Do.		Do.				
Bibenzoate	Plates and needles		0·1						
Boletate	Crystalline mass		Very soluble						
Borate	White saline mass, and four-sided prisms		Soluble			100	30	(2·75; 6, *Thomson*).	
Camphorate	Hexagonal crystals		0·01	0·25	0				
Carbonate	White mass	2·34	1·0		Deliquescent	2·75	6		8·75
Bicarbonate	Quadrangular prisms	2·085	0·3	0·83	0	5·5	6	1·125	12·625
Chlorate	Thin plates and rhomboids	1·99	0·062	0·4	0	9·5	6		15·5
Chromate	Yellow four-sided prisms	2·6	0·48		0	6·5	6		12·5
Bichromate	Orange-red four-sided tables and prisms	1·98	0·104		0	13	6		19·0
Citrate	Crystalline mass		Very soluble		Deliquescent	55·5	44·5		
Columbate	Glittering scales		Soluble		0				
Ferro-prussiate	Square plate bevelled	1·83	0·3	1·0	0				
Fluate	Crystalline mass		Very soluble		Deliquescent	1·25	6		
Fluo-silicate	Arenaceous powder			0·0066	0				
Hydriodate	Cubic crystals		Soluble			15·625	6		
Hydro-sulphuret	Four-sided prisms		Do.		Deliquescent				
Iodate	Crystalline grains		0·077		0	20·5	6		
Lactate	Yellow gummy mass		Soluble						
Lithate	White powder		0						
Malate	Mass		Very soluble		Deliquescent				
Mellate	Long prisms		Soluble						
Molybdate	Rhomboidal plates		Do.						
Muriate	Rectangular prisms	1·98	0·307		0	36	64	(Chlor. 4·5; potassm. 5).	
Nitrate	Six-sided prisms	2·073	0·266	1·0	0	6·75	6		

Subphosphate								
Hypophosphite								
Pyrocitrate	Small needles							
Suberate	Prisms with four unequal sides							
Succinate	Three-sided prisms							
Sulphate	Six-sided prisms with six-sided pyramids	2·67	0·073	0·2	0			
Bisulphate	Six-sided prisms		0 2		0	10	0	
Ammonia-sulphate	Brilliant plates		Soluble		0	60 sulph. pot.; 40 sulph. am.		
Sulphite	White rhomboidal plates	1·586	1			4	6	10
Hyposulphite	Spicular mass		Very soluble		Deliquescent			
Hyposulphate	Cylindrical prisms		Soluble					
Tartrate	Four-sided rectang. prisms	1·556	1		0	58·7	41·3	
Bitartrate	Small prisms	1·95	0·046	0·07	0	18·5	6	
Ammonia-tartrate	Prisms of 4, 5, or 6 sides		Soluble		Efflorescent			
Tungstate	White powder		Do.		Deliquescent			
Nitro-tungstate	Do.			0·05				
SALTS OF RHODIUM.								
Muriate	Red liquid							
Soda-muriate	Red rhomboidal crystals		0·66		0			
Nitrate	Red liquid							
Sulphate	Mass		Soluble		Deliquescent			
SALTS OF SILVER.—Prime Equivalent of oxide 14·875.								
Acetate	Small needles		Soluble					
Arseniate	Brown powder		0					
Arsenite	Yellow ditto, passing to brown		0					
Benzoate	Mass		Very soluble		0			
Borate	White powder		0					
Carbonate	Do.		0			2·75	14·875	
Chlorate	Opaque small rhomboids		0·5					
Chromate	Red powder		0					

SALTS OF SILVER.—*Continued.*

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°	212°	Action of Atmosphere.	Composition Acid.	Base.	Water.	Prime equivalent.
Citrate	Powder		0						
Fluate	Mass		Very soluble						
Lactate	Greenish-yellow mass		Do.						
Molybdate	White flakes		0						
Muriate	White curdy mass		0		0	Chlorine 4·5; metal 13·875			
Nitrate	6, 4, and 3-sided plates	3·521	1		0	6·75	14·875		
Oxalate	White powder		Scarcely						
Phosphate	Yellow powder					17	83		
Succinate	Oblong radiated prisms		Soluble						
Sulphate	Brilliant white prisms		0·0115			5	14·875		
Sulphite	Brilliant white grains		Very little						
Hyposulphite	Gray flakes		Soluble						
Ammonia-hyposulphite	White mass, or hexang. pl.		Very soluble			2 primes hypos.-ammon.—1 hyp.-silver.			
Lime-hyposulphate	White mass		Do.						
Potash-hyposulphite	Pearly scales		Little						
Soda-hyposulphate	Thin silky plates		Very soluble						
Tartrate	Saline mass		Soluble						
Potash-tartrate	Mass		Do.						

SALTS OF SODA.—Prime equivalent 4.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°	212°	Action of Atmosphere.	Composition Acid.	Base.	Water.	Prime equivalent.
Acetate	Striated prisms	2·1	0·35		0	37	23	40	7 acid 4 base, dry.
Arseniate	Rhomboidal prism	1·76	0·025			29·3	15·9	54·8	
Potash arseniate	Obl. pris. with rhomb. base		Soluble			Arseniate-potash 54; arseniate-soda 46.			
Ammonia-arseniate	Do.		Do.						
Binarseniate	Prisms		Do.			63·16	17·13	19·71	
Benzoate	Crystals		Do.		Efflorescent				
Borate		1·359	0·1 at 149°						
Sub-borate	Hexangular prisms	1·65[illegible]	0·0[illegible]	0·1[illegible]	Efflorescent	2·75	8	[illegible]	

Salts of Soda—Continued.

Camphorate	Irregular crystals		0·01	10·?	Efflorescent	
Carbonate	Rhomboids	1·117	1·0		Do.	2·75 4 12·375 1½ water
Do. ignited	Massive	2·44				2·75 4 6·75
Sesquicarbonate	Striated masses		Soluble		0	10 39·7 20·3
Bicarbonate	Crystalline mass		Soluble			
Chlorate	Square plates		Very soluble			9·5 4 13·5
Chromate	Thin six-sided tables		Soluble			
Citrate	Six-sided prisms		0·60		Efflorescent	60·7 39·3
Ferroprussiate	Yellow four-sided prisms	1·46	0·22		Do.	
Hydriodate	Flat rhomboids		Very soluble		Deliquescent	17·625 4 + water
Iodate	Tufts of prisms and cubes		0·073			20·5 4
Lithate	White powder					
Malate	Mass		Very soluble		Deliquescent	
Boletate	Crystals		Soluble		0	
Mellate	Cubes and three-sided tables		Do.			
Molybdate	Transparent crystals		Do.		0	
Muriate	Cubes	2·125	0·3429—0·359		0	4·5 chlorine, 3 sodium, 7·5
Nitrate	Rhomboids	2·09	0·33	1 at 126°	Deliquescent	6·75 4 10·75
Oxalate	Crystalline grains		Little			51·77 45·23
Phosphate	Rhomboidal prisms	1·519	0·25	0·5	Efflorescent	53·48 46·52 dry, and 20·33 17·67 62 w. crystal.
Ammon.-phosphate	Prismatic columns	1·50	Soluble		Do.	34·49 14·87 9 amm. 41·64 w. or phos. sod. 32 phos. amm. 26·4
Biphosphate	Prisms		Very soluble			51·50 22·56 25·54
Hypophosphite			Do.			
Suberate	Mass		Do.		Deliquescent	
Succinate	Four or six-sided prisms		Soluble		0	
Sulphate	Six-sided prisms chamfered	1·44	0·394	0·8	Efflorescent	24·76 19·24 56
Bisulphate	Rhomboids		0·5		Do.	
Ammon.-sulphate	Crystals		Soluble		0	Sulph. sod. 5 sulph. amm. 9
Sulphite	Four-sided prisms	2·95	0·25	1·0	Efflorescent	24·5 24·5 51·?
Hyposulphite	Radiated silky tufts		Soluble		Do.	
Tartrate	Fine needles	1·743	1·0			
Potash-tartrate	Eight or ten-sided prisms		As the last		Efflorescent	54 tart. pot. 46 tart. sod.
Tungstate	Elongated six-sided plates		0·25 0·5			

SALTS OF STRONTITES.—Prime Equivalent 6·5.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Flat rhomboidal prisms			0·04	Efflorescent	49·5	50·5 ?		
Arseniate	White powder			0					
Arsenite	Mass		Soluble						
Sub-borate	White powder			0·077					
Carbonate	White powder and semi-transparent striated masses	3·66	0·0065			29·7	70·3		
Chlorate	Needles		Very soluble		Deliquescent	46	26	28	(9·5 6·5 dry)?
Chromate	Yellow powder			0					
Citrate	Small crystals		Soluble						
Ferroprussiate	Mass		0·25		0				
Fluate	White powder			0					
Hydriodate	Mass		Very soluble						
Iodate	Small octohedrons		0·24			(20·5	6·5)	+ water.	
Lactate	Gummy mass		0·12						
Muriate	Tables, and two 8-sided pyramids base to base	2·63	0·43 at 190°		0	4·5 chlor. 5·5 strontium.			
Oxalate	White powder			0·0052	0	40	60 ?		
Phosphate	Do.			0	0	36·56	63·44		
Hypo-phosphite	Mass		Very soluble						
Succinate	Arenaceous crystals		Soluble,						
Sulphate	White powder and rhomboidal prisms		0·00026 Sol. in hot sul. ac.			43·5	56·5 ?		
Hypo-sulphite	Rhomboidal crystals		0·166 at 50°		0				
Hypo-sulphate	Small six-sided plates		Soluble						
Tartrate	Rhomboidal prisms		0·006			47	53		

SALTS OF TELLURIUM.

Name.	Form.	Sp. Gr.	Solubil. in Water	Action of Atmosphere.	Composition.
Muriate	Liquid				
Nitrate	Dendritic crystals		Soluble		
Sulphate	Crimson liquid				

SALTS OF THORYNA.—See THORINA.

Acetate							
Arseniate	White						
Benzoate	Powder						
Borate	White powder						
Nitrate	Yellow liquid						
Ammon.-nitrate			Soluble				
Oxalate	Prismatic crystals		Do.				
Phosphate	Powder		0				
Succinate	Thin broad crystals		Soluble				
Sulphate	Fine prismatic needles						
Deutosulphate	Gelatinous						
Tartrate			Soluble				
Potash-tartrate			Very soluble				
			SALTS OF TITANIUM.				
Carbonate	Red-white powder				25	75 white oxide	
Muriate	Cubic cryst. or yell. jelly		Soluble				
Nitrate	Elongated rhomboids		Do.				
Phosphate	White precipitate						
Sulphate	Gelatinous mass		Do.				
			SALTS OF URANIUM.				
Acetate	Yellow four-sided prisms		Soluble				
Arseniate	Yellow-white powder		0				
Muriate	Yellow-green 4-sided tables		Soluble	Deliquescent			
Nitrate	Yellow hexangular tables and 4-sided rectangular prisms		2·15 alcohol 3·33		25	61	14
Subnitrate	Yellow powder		0				
Phosphate	Yellow-white flakes		Scarcely				
Sulphate	Small yellow prisms and tables		1·6 2·2		18	70	12

SALTS OF YTTRIA.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Red six-sided plates		Soluble		0				
Arseniate	White powder		0						
Carbonate	Do.		0			18	55	27	
Chromate	Dendr. prisms and cubes		Very soluble						
Muriate like the	Gummy mass		Do.		Deliquescent				
Nitrate						57·5	42·5		
Oxalate	White powder		0						
Phosphate	Gelatinous flakes		0						
Succinate	Cubic crystals		Sparingly						
Sulphate	Red brilliant grains, and rhomboidal prisms	2·79	0·033		0				
Tartrate			Soluble						

SALTS OF ZINC.—Prime Equivalent of Oxide 5·25.

Name.	Form.	Sp. Gr.	Solubil. in Water at 60°.	212°.	Action of Atmosphere.	Composition. Acid.	Base.	Water.	Prime Equivalent.
Acetate	Glistening rhomboidal or hexagonal plates		Very soluble		0				
Antimoniate	White crystalline powder		Slightly		0				
Arseniate	White powder		0						
Benzoate	Needles		Soluble						
Borate	White powder		0			In the hydrate			
Carbonate	Do. and crystals		0			2·75 2·75	5·25 5·25	1.125; and in the dry,	
Chromate	Orange-red powder		0						
Citrate	Small brilliant crystals		0			59	41		
Chlorate	Low octohedrons		Soluble						
Fluate	Gelatinous flocks		0						
Hydriodate	Mass, or prisms		Very soluble		Deliquescent	15·625	52·5		
Iodate	Spherical grains		Slightly						
Lactate	Four-sided prisms		0·02						
Malate	Fine crystals		Soluble						

Iodate
Lactate
Malate

Gelatinous flocks
Mass, or prisms
Spherical grains
Four-sided prisms
Fine crystals

0
Soluble 0
0
Very soluble
Slightly

Deliquescent

hydrate
2·75 5·25 1.125; and in the dry,
2·75 5·25
59 41

Muriate	Mass	1·577	Very soluble	Deliquescent	
Nitrate	Striated four-sided prisms	2·0	Do.	Do.	
Molybdate	White powder		0		
Oxalate	Do.		Slight		75 per cent. of metal.
Phosphate	Tough white magna		0		100 113·8
Biphosphate	Mass		Soluble		
Succinate	Slender foliated crystals		Do.		
Sulphate	Four-sided rectangular prisms	1·98	1·4	0	30·96 32·58 36·45
Sulphite	Crystals		Soluble	Into sulphate	
Hypo-sulphite	Slender four-sided prisms		Do.	Whiten	
Cobalt-sulphate	Four-sided prisms		Very soluble	Efflorescent	
Iron-sulphate	Green rhomboids		Soluble		
Tartrate	Solid		Slight		
Potash-tartrate	Mass		Very soluble		
Tungstate	White powder		0		

SALTS OF ZIRCONIA.

Acetate	Mass		Very soluble	0	
Benzoate			Soluble		
Borate	White powder		0		
Carbonate	Do.		0		44·5 acid and water; 55·5 zircon
Citrate	Do.		0		
Fluate	Do.		0		
Gallate	Do.		0		
Malate			Soluble		
Muriate	Needles		Very soluble	Efflorescent	
Nitrate	Yellow viscid mass		Slight		
Oxalate	White powder		0		
Phosphate	Do.		0		
Sulphate	White powder, or small needles		0	0	
Bisulphate	Stelliform crystals		Soluble		
Sulphite	White powder		0		
Tartrate	Do.		0		

PART V

VEGETABLE SUBSTANCES.

1131. We are now to engage in the consideration of a different order of substances from any that have yet been under investigation, viz. the products of organisation, the regulating principle of which, being something not within the compass of mere material existence, renders the investigation of the subject altogether dissimilar from that of substance, which is, ab origine ad finem, inert matter.

1132. Organic products are divided as to their chemical consideration into immediate or proximate and ultimate principles; the first term applying to those principles which actually exist during the existence and agency of the vital principle; the second comprehending those compounds which formed in themselves, and abstractedly, no part of the vegetable or animal being, but which result from an entirely new, and now, strictly speaking, chemical arrangement of the elements of that being.

1133. In the article ANALYSIS we have adverted to a method recently proposed by Gay Lussac and Thenard for ascertaining the ultimate principles of vegetables with accuracy, these appear to be few in number, carbon, oxygen, and hydrogen being the principal of them; some affording nitrogen, small quantities of sulphur, potassa, lime, soda, magnesia, silica, nitrate of potassa, and soda, muriate of soda, phosphate of lime, with minute quantities of iron in a state of oxide, and of oxide of manganese.

We now, however, are to consider the products of vegetation, or those principles which result from the organic constitution of vegetable bodies, and which are displayed during the agency of vegetable life.

1134. 'The products of the vegetable economy,' says Dr. Henry, 'are either situated in particular organs or vessels, or are distributed throughout the whole plant. Sometimes they reside in the root or stalk, at others in the bark or leaves, at others they are peculiar to the fruit, the flowers, the seeds, and even to particular parts of these organs.' When thus insulated, they may readily be procured in a separate state; and in several instances nothing more is required than the labor of collecting them. Thus gum exudes from some trees, and manna issues from the branches of others. Sometimes, however, we are presented with a variety of substances mingled together, and requiring separation by processes which are sufficiently simple, and which consist in repose, filtration, pressure, washing, distillation at a gentle heat, solution by water and alcohol, and similar operations that do not alter the nature of the bodies submitted to them.'

1135. 'The number of principles,' continues our author, 'which have thus been extracted from vegetables has of late years been greatly enlarged, and amounts at present to upwards of forty. Of these, the greater part are certainly entitled, by a train of properties sufficiently characteristic, to rank as distinct compounds. But others seem so nearly allied to substances with which we have long been acquainted, that it can serve no useful purpose to assign to them a different place in the system. The unnecessary multiplication indeed of vegetable principles contributes rather to retard than to advance the progress of this difficult part of chemistry; and it is only in cases of decided and unequivocal differences of qualities, that we should proceed to the establishment of new principles.'

We are pleased to find our own sentiments in accordance with so great a master of chemical philosophy as is Dr. Henry, and we have often thought that there is a little too much of running to seed disposition in the present day, with respect to the detection of principles, now that our means of analysis are so largely facilitated by the vast improvements of modern science.

1136. Vegetable products have been divided by some authors into four classes. 1. Those which are usually solid, and not very combustible. 2. Those which are fluid or melt with heat, and burn like oils, and are all insoluble in water though they are generally soluble in alcohol. 3. Substances which are not soluble in water, alcohol, or ether.

1137. Although we shall in some measure follow this division, it cannot be considered as throughout tenable; and arrangements of this kind are of no utility in facilitating acquirement. In the first class have been arranged,

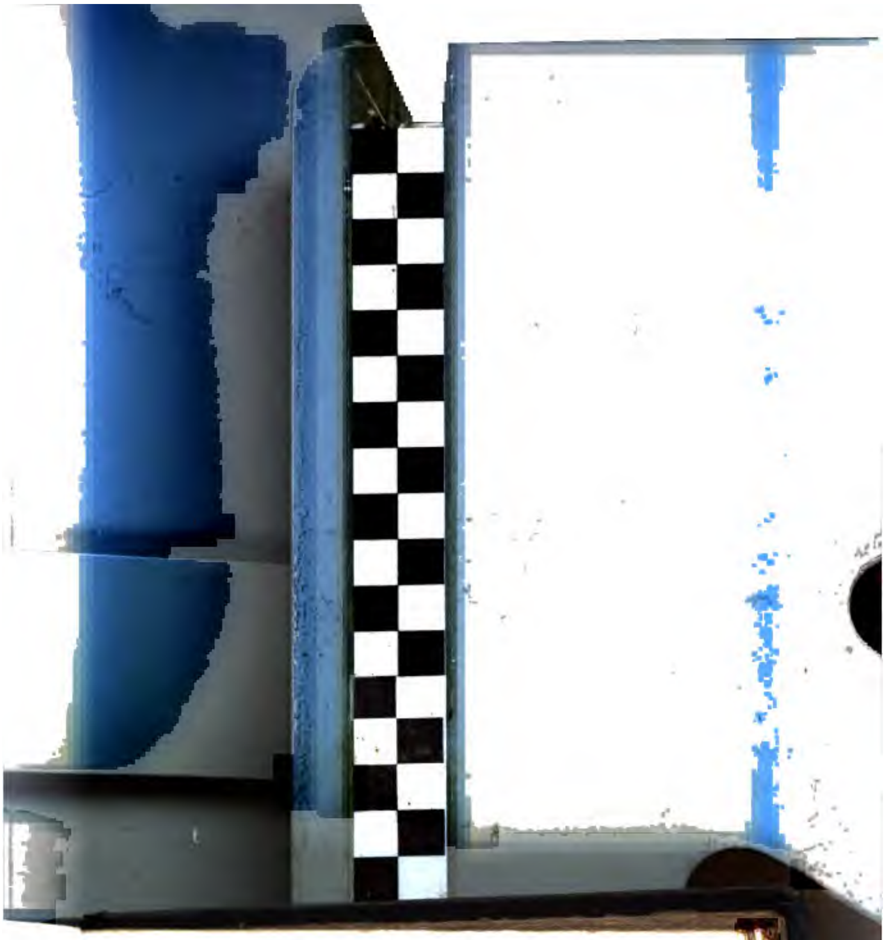
Acids
Sugar
Sarcocoll
Asparagin
Gum
Gelatin
Ulmin
Inulin
Starch
Coloring matter
Gluten
Albumen
Fibrin
Bitter principle
Extractive.

ACETIC ACID.

1138. This acid, unless we except those which are ready formed in vegetables, appears to have been the first that was known to mankind. It seems to have been in very general use from the earliest times. When first prepared it is called vinegar; when rectified by distillation it is called distilled vinegar, or acetous acid, by chemists; when highly concentrated it is called radical vinegar, and by chemists acetic acid.

1139. Vinegar is prepared from beer, or wines, which become sour when exposed to the air at a temperature between 70° and 80°, and especially if some fermenting substance be added to the liquor. It is also prepared in very considerable quantities by the distillation of wood.

1140. Boerhaave describes a process for making vinegar from wine, which is still followed in many of the wine countries. Two large oaken vats or hogsheads, open at one end, have each a wooden grate or hurdle fixed about a foot above their bottom. On each of these grates is placed a layer of the green twigs of the vine. The vessels may then be filled with the foot-stalks of grapes, called rape, in order to increase the strength of the fermentable matter. The vessels being thus prepared, one of them must be filled to the top with the wine to be fermented into vinegar, and the other must only be half filled. A fermentation, with increase of heat, soon takes



place in the half filled vessel, and at the end of very twenty-four hours this must be filled up with liquor from the full vessel. The fermentation only goes on in the half filled vessel, and, by exchanging the liquor every twenty-four hours, the fermentation is checked, and goes on in each vessel alternately. In about twelve or fifteen days the vinegar is formed; though during winter longer time is necessary.

1141. Vinegar has generally the color of the liquor from which it was fermented, a sour taste, and an agreeable smell. Its specific gravity varies from 1·8135 to 1·0251. It is liable to spontaneous decomposition; but Scheele discovered that by making it boil for a few seconds, and corking it in bottles, it may be made to keep a very long time. Vinegar contains one or more vegetable acids, besides the acetic; and likewise mucilage, tartar, and coloring matter.

1142. When distilled by the heat of a water-bath, until about two-thirds have passed over, the impurities are left behind. The liquor which passes over is limpid as water, of an agreeable odor, and a strong acid taste. This is distilled vinegar, or the acetous acid of the chemists, and it consists of the acetic acid combined with a portion of water. It will keep any length of time in close vessels. Exposed to a moderate heat it wholly evaporates without change. Exposed to cold most of the aqueous part congeals, and what remains liquid is the acid in a high state of concentration. Mr. Lowitz has proved that the acid itself, however much it may be concentrated, congeals at 22° below 0.

1143. When acetate of copper is reduced to powder, and distilled, at first there comes over a liquor nearly tasteless and colorless, and afterwards a highly concentrated acid. When the heat is continued until the bottom of the retort is red-hot, no more acid comes over, and there remains a powder of the color of copper. The acid product, which should be collected in a receiver by itself, is tinged green by a little copper which comes over with it; but, by distilling again with a gentle heat, it is obtained transparent and colorless like water. This acid is very pungent and concentrated; and is the radical vinegar, or the vinegar of Venus of the alchemists.

1144. It was first supposed by Berthollet and others, that the acid, in this case, combined with a new portion of oxygen, obtained from the oxide of copper, from which it was distilled. Hence the name of acetic acid, which marked the highest dose of oxygen which could combine with any basis. But Adet, Darracq, Proust, and others, have demonstrated that radical vinegar differs in no respect from acetous acid, except in being much more concentrated, and in being more completely freed of the impurities, which, in some degree, contaminate the former, as well as common vinegar. The opinion then of the basis of vinegar combining with different doses of oxygen, so as to constitute acids with different properties, is now given up.

1145. Lowitz, of Petersburg, has pointed out another method of obtaining acetic acid in a high state of concentration. To three parts of acetate of potash add four parts of sulphuric acid, and distil off the acetic acid. The sulphuric acid combines with the potassa, and sets loose the acetic; but a portion of the former comes over with the latter. This may be separated by distilling the product again from acetate of baryta.

1146. The specific gravity of distilled vinegar varies from 1·007 to 1·0095; but that of radical vinegar is as high as 1·080. The radical vinegar is very pungent and acrid; it soon corrodes the skin, and changes vegetable blues to red. It is very volatile, and readily takes fire. It combines with water in any proportion, and during mixture much heat is evolved.

1147. This acid crystallises when prepared in the way last described. It may also be made to crystallise when made into a paste, with charcoal, and distilled with the heat of a water-bath, or 212°, which expels the water combined with it. The heat being afterwards raised, the acid comes over, and crystallises in the receiver, provided it be changed.

1148. This acid oxidises iron, zinc, copper, nickel, tin; and is not known to act upon the other metals. It combines with alkalis, earths, and metallic oxides, and the salts it forms with these substances are known by the name of acetates.

1149. It is decomposed by sulphuric and nitric acids; it dissolves the boracic, and absorbs carbonic acid. It combines a variety of vegetable substances, such as oils, mucilage, and aromatics.

1150. Berzelius gives the proportional components of acetic acid,

Carbon . . .	46·83
Oxygen . . .	46·82
Hydrogen . .	6·35
	100·00

OXALIC ACID.

1151. The oxalic acid exists ready formed in the oxalis acetosella, or wood sorrel, and other plants of that genus, as was discovered by Scheele, to whom we are indebted for the discovery of this acid. It has also been called the saccharine acid, or acid of sugar, because it is commonly prepared from this substance.

1152. The process commonly employed for its preparation, is that which was recommended by Bergman. An ounce of white sugar powdered, is put into a tubulated retort, with three ounces of nitric acid, of the specific gravity of 1·567. The sugar dissolves, and fumes of nitrous acid escape. Then a receiver is fitted, and the liquor made to boil, which causes much nitrous gas to rise. When the liquor in the retort acquires a reddish-brown color, three ounces more of the nitric acid are added, and the boiling is continued until the liquor becomes colorless. The contents of the retort being now emptied into a broad vessel, the oxalic acid, formed during the boiling, shoots into quadrilateral prisms which are often affixed to each other at an angle of 45°. These crystals being collected, and dried upon blotting paper, may be farther purified by solution in distilled water, evaporating and crystallising them a second time. If two ounces of nitric acid be added to the liquid residuum, boiled and crystallised as before, an additional quantity of the oxalic acid may be obtained.

1153. By the same process, oxalic acid may be obtained from gum arabic, alcohol, honey, wool, hair, and a variety of animal and vegetable substances. We have obtained it from powdered peat, when treated in this manner.

1154. Oxalic acid, thus prepared, is in the form of four-sided prisms, terminated by two-sided summits. They are transparent, and of a brilliant white color; have a very acid taste, and redden all vegetable blues, except indigo.

1155. These crystals dissolve in water with a crackling noise. Boiling water dissolves its own weight, and water 65° half its weight of them. Boiling alcohol dissolves 56 parts in 100 of its weight of these crystals, and at medium temperature, only forty parts. Liquid oxalic acid has a very acrid taste when concentrated, but when much diluted it is a very agreeable acid. According to Morveau, one part of crystallised acid, conveys a sensible acidity to 2633 parts of water. Water may be evaporated from it, without carrying any of the acid along with it.

1156. This acid oxidises lead, copper, iron, tin, bismuth, nickel, cobalt, zinc, manganese; but does not act upon gold, platinum, silver, or mercury. It combines with alkalis, earths, and metallic oxides; and the salts it forms are called oxalates.

1157. When the crystals of oxalic acid are exposed to heat, a white smoke arises, which is very disagreeable to the eyes and nostrils. The residuum is whiter than the acid had been, and $\frac{4}{10}$ths of its weight is lost, which is recovered by exposure to the air. When distilled with a strong heat, it yields a great quantity of carbonic acid gas, and of carbureted hydrogen gas, while charcoal remains behind.

1158. Muriatic and the acetic acids dissolve the oxalic, but without altering it. The sulphuric acid, when assisted by heat, partly decomposes it, and charcoal is formed. At a boiling heat, nitric acid decomposes, and converts it into carbonic acid and water.—Hence, in the formation of this acid, the nitric acid should not be added in excess. An accurate observation of Dr. Thomson, determines its composition as follows:

Oxygen	64
Carbon	32
Hydrogen . . .	4
	100

1159. Its property of forming an insoluble compound with lime renders it very useful for detecting the presence of lime in solutions. It takes lime from all the other acids; and, if a little of it be dropped into the solution of any salt of lime, a white cloud is formed, which soon falls to the bottom. In this way lime may be precipitated from its union with any of the other acids.

TARTARIC ACID.

1160. Tartar, or cream of tartar, a substance which is evolved during the fermentation of wine, has long been the object of chemical investigation. It was long ago discovered to be an acid united to potassa; but Scheele was the first who obtained it in an uncombined state.

1161. To obtain the tartaric acid, the substance called tartar, or cream of tartar (bitartrate of potassa), is boiled in water, and powdered chalk added until effervescence ceases, and the liquor no longer reddens vegetable blues. Being allowed to cool, the liquor is thrown upon a filter, and well washed. A white powder is left upon the filter, which is tartaric acid combined with lime. This powder being put into a mattrass, and diluted with water, has as much sulphuric acid added to it as is equal to the weight of the chalk employed. Allow it to digest twelve hours in a moderate heat, and stir it occasionally. The sulphuric acid combines with the lime, and falls to the bottom, while the tartaric acid remains dissolved in the water. The sulphate of lime being allowed to subside, the clear liquor is decanted off, and a little acetate of lead dropped in which forms a white cloud, if any sulphuric acid should remain. Should this be the case, the liquor must be digested with more tartrate of lime, until all the sulphuric acid be absorbed. If not, the liquid, being slowly evaporated, deposits about one-third of the weight of the tartar employed, of tartaric acid in a crystallised form. These crystals may be purified by dissolving them again in distilled water, and crystallising them a second time by slow evaporation. Fourcroy thinks this acid exists, in a state of purity, in some vegetables; and Vauquelin found a 64th part in the pulp of the tamarind.

1162. The crystals of tartaric acid are exceedingly various in their figure, size, and mode of arrangement. They have a sharp acid taste, and, diluted with water, the taste resembles that of lemon juice. The acid strongly reddens vegetable blue colors. The crystals do not decompose when exposed to the air. They are very soluble in water, and a concentrated solution does not lose its acid properties in the air; though one that is much diluted is apt to do so.

1163. When exposed to heat in an open fire the crystals burn, leaving a spongy residuum of charcoal, in which a little lime has been detected. When distilled in close vessels this acid is converted into carbonic acid gas, and carbureted hydrogen gas, a colored oil, and a reddish acid liquor; which was formerly distinguished by the name of pyrotartarous acid.

1164. Hermbstad ascertained that the tartaric acid, after being repeatedly distilled with six times its weight of nitric acid, is converted into the oxalic acid. From 360 parts of tartaric acid he obtained, by this process, 560 parts of oxalic acid.

1165. This acid has never been applied to any use, but some of its compounds are much used in medicine. It combines in two different proportions with a great variety of bases. In order to detect the presence of this acid in any liquor, it is only necessary to drop in a little of the solution of potassa, which, combining with the acid, will form a cloud, or insoluble salt.

1166. This acid combines with metallic oxides, forming salts which are known by the name of tartrates.

1167. According to Ure, the constituents of this acid are

Oxygen . . .	65·82
Carbon . . .	31·42
Hydrogen . .	2·76
	100·00

CITRIC ACID.

1168. It has long been known that the juice of oranges and lemons is an acid; but it is not pure, as it contains mucilage, which renders it liable to spontaneous decomposition.

1169. Mr. Georgius, in 1774, published in the Swedish Memoirs a process for obtaining the acid pure. He filled bottles with lemon juice, and having corked them close set them in a cellar. In four years the mucilage had dropped to the bottom in flakes, a thick crust had formed at the cork, and the liquid was become limpid as water. Having decanted off this liquid he exposed it to a cold of 23°, which froze great part of the water, and left behind a pretty strong acid. The acid was not, however, perfectly pure, and it was Scheele who first pointed out the method of obtaining this acid in purity, and demonstrated its peculiar properties.

1170. Having filtered lemon juice, add powdered chalk to it, in small quantities, as long as effervescence takes place, or until the acid be saturated. The lime forms an insoluble compound with the citric acid, and falls to the bottom in the form of a white powder. This powder being thrown upon a filter, and washed with warm water until it comes off clear, must be put into a matrass with six times its weight of water. Then add as much sulphuric acid as may be sufficient to saturate the lime and boil it for some minutes. The sulphuric acid now forms an insoluble compound with the lime, while the citric acid remains dissolved in the water. Having thrown the sulphate of lime upon a filter, and washed off the citric acid with water, this acid is obtained in a liquid form. The liquid being now evaporated to the consistence of syrup, and set aside to cool, the citric acid is obtained in a crystallised form.

1171. Mr. Scheele advises to add sulphuric acid in excess, to ensure the separation of the lime, and Dize thinks this necessary to dissolve the mucilage which adheres to the citric acid. But Proust has proved that when too great an excess of the sulphuric acid is used, it acts upon the citric acid itself, converts part of it into charcoal, and prevents it from crystallising. This mistake is corrected by adding a little chalk. This chemist ascertained that ninety-four parts of lemon juice were necessary to saturate four parts of chalk; and seven and a half parts of citrate of lime were obtained; to decompose which required twenty parts of sulphuric acid, of the specific gravity 1·15. See, for an account of several modern improvements in the process, *Parkes' Chemical Essays*, vol. iii.

1172. The crystals of citric acid are rhomboidal prisms. Their taste is exceedingly acid, and even painful; but, when sufficiently diluted with water, the acid is cooling and pleasant. The acid has a slight odor of lemons, and reddens vegetable blues.

1173. When thrown in the fire the crystals melt, exhale an acrid vapor, and leave behind a small quantity of charcoal. Distilled in close vessels, part evaporates without decomposition, and the remainder is converted into acetic acid, carbonic acid, and carbureted hydrogen gas, which comes over; and charcoal is left in the retort.

1174. This acid is very soluble in water. According to Vauquelin seventy-five parts of cold water dissolves 100 parts of its crystals; and boiling water dissolves twice its weight of them. The crystals are not altered by exposure to the air; and a strong solution may be kept a long time in close vessels, though it putrifies and is decomposed at last.

1175. Concentrated sulphuric acid converts the citric into acetic acid. Scheele could not convert it into oxalic acid by treating it with the nitric acid; but Westrumb effected this conversion. By treating sixty grains of citric acid with 200 grains of nitric acid, he got thirty grains of oxalic acid. With 300 grains of nitric acid he obtained only fifteen grains of oxalic acid; and with 600 grains of nitric acid, no oxalic acid was obtained. On distilling these products, particularly the last, it was found to consist of vinegar mixed with nitric acid. He therefore infers that Scheele had used too great a proportion of nitric acid, by which the citric acid had been converted into the acetic instead of the oxalic acid.

1176. Berzelius gives the constituents of citric acid as follows:—

Oxygen . . .	54·831
Hydrogen . .	3·800
Carbon . . .	41·369
	100·000

* 1177. The salts it forms with metallic oxides are called citrates.

1178. The uses of this acid in making lemonade, punch, and other drinks, and as a seasoner for food are well known. The crystals of the acid have lately been introduced in place of the expressed juice of lemons, as much of the acid can thus be conveyed under a small bulk. But they have not the peculiar flavor of the natural juice, which seems owing to their wanting the aromatic oils of the fruits.

MALIC ACID.

1179. This acid, as its name imports, abounds in apples, and is found in various fruits and plants ready formed. Its properties were first discovered by Scheele, who proposed the following process for extracting it.

1180. Having bruised four apples, squeeze out the juice, and filter it through a linen cloth. Saturate this juice with potassa, and add to it acetate of lead until no more precipitation ensues. The acetic acid combines with the potassa, and remains with it dissolved in the liquor; while the lead combines with the malic acid, and goes to the bottom with it as an insoluble powder. Wash this precipitate carefully with water and then pour upon it sulphuric acid diluted with water, until the liquor has a sharp acid taste without any of that sweetness which continues as long as any lead remains in it. The sulphuric acid forms an insoluble compound with the lead, leaving the malic acid in the liquor. By washing the sulphate of lead upon a filter, the pure malic acid is obtained combined with water.

1181. Vauquelin has ascertained that it may be extracted in abundance from the house-leek, or sempervivum tectorum, where it exists in union with lime. To the juice of the house-leek he added acetate of lead, as long as any precipitation took place. Having washed the precipitate, he decomposed it by diluted sulphuric acid, as directed by Scheele.

1182. Malic acid has also been obtained by the action of nitric acid on sugar. Equal parts of nitric acid and sugar being distilled until they assume a brown color, which happens when all the nitric acid is abstracted; the oxalic acid, which may have been formed, is precipitated by lime water. Another acid remains which should be saturated with lime, and filtered. Pour upon this filtered liquor acetate of lead until no more precipitation ensues. The precipitate is the malic acid combined with lead, which may be separated by diluted sulphuric acid as before.

1183. Malic acid, thus obtained, is of a reddish brown color, and very acid taste. When evaporated it becomes thick and viscid, but does not crystallise. Exposed in thin layers to a dry atmosphere, it dries and assumes the appearance of varnish; and it is thought, at least with certain additions to correct its solubility in water, it might make a very brilliant varnish. It reddens vegetable blues. It is very soluble in water, and decomposes spontaneously when kept in vessels.

1184. When heated in open vessels it swells, exhales acrid fumes, and leaves a porous and voluminous charcoal. When distilled, it yields acidified water, a large proportion of carbonic acid gas, a little carbureted hydrogen gas; and a porous coal is left in the retort.

1185. Sulphuric acid converts part of it into charcoal; and nitric acid converts it into oxalic acid. Hence malic acid is composed of oxygen, hydrogen, and carbon. Vauquelin's proportions are

Hydrogen . . .	16·8
Carbon . . .	28·3
Oxygen . . .	54·9
	100·0

1186. The malic has much resemblance to the citric acid; but it differs from the latter, 1st. In not forming crystals. 2nd. In forming a soluble salt with lime, while citrate of lime is almost insoluble, even in boiling water. 3rd. In precipitating mercury, lead, and silver from nitrous acid and even diluted solution of gold; while citric acid does not alter any of these solutions. 4th. In having a less affinity than the citric acid for lime.

1187. The malic combines with metallic oxides, forming salts which have obtained the name of malates.

Gallic Acid.

1188. The excrescence upon oak trees called the gall-nut, contains the gallic acid combined with tannin. This acid exists in a great variety of plants; and in the gall plant, from which it seems to have derived its name, it is found combined not only with tannin, but with a portion of camphor. The Dijon Academicians were the first who published experiments on this substance in 1777; but it was Scheele who first obtained the gallic acid nearly in a state of purity.

1189. Having exposed an infusion of gall-nuts a long time to the air, and occasionally removed the mouldy crust which gathers on its surface, he observed that it deposited a crystalline sediment of an acid taste. Having collected a large quantity of this sediment, and washed it with cold water, he dissolved it in hot water, filtered, and evaporated the liquid very slowly. It yielded an acid salt in crystals as fine as sand.

1190. Deyeux obtained the same acid by exposing gall-nuts in a large glass retort to a heat which was slowly and cautiously raised. The gallic acid was sublimed in the form of white crystalline plates. But the heat must not be too great, and the process must be stopped before any oil comes over; otherwise the labor will be lost.

1191. When pure, the gallic acid is in the form of transparent octahedral plates. It tastes acid, and somewhat astringent; and has a peculiar aromatic odor when heated.

1192. It is soluble in twelve parts of cold water, and in one and a half of boiling water. The acid soon decomposes when the solution is heated. Cold alcohol dissolves one-fourth of its weight of this acid, and, when boiling hot, it dissolves a quantity equal to its own weight. It is also soluble in ether.

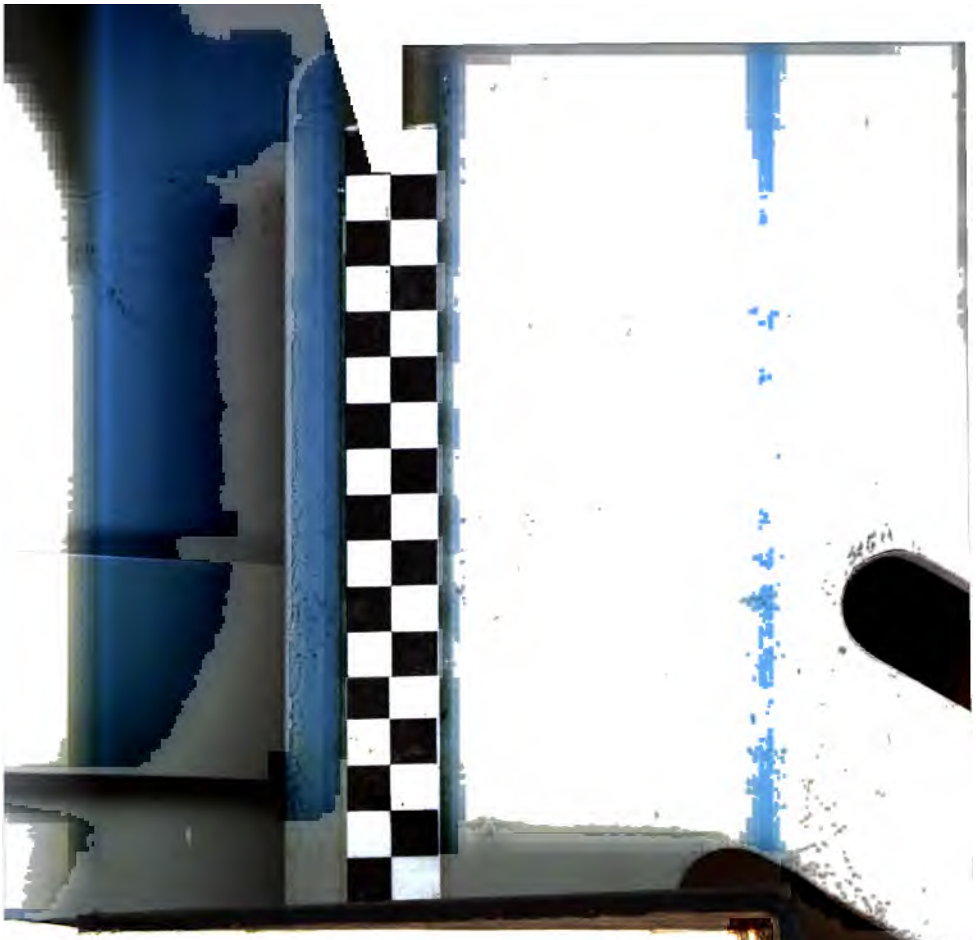
1193. By a moderate heat it sublimes without alteration; but a strong heat decomposes, and converts it into an acid water, carbureted hydrogen gas, carbonic acid gas, oil, and charcoal. When distilled it yields oxygen gas, an acid liquor; and some gallic acid comes over unchanged, while charcoal remains in the retort. If what comes over into the receiver be repeatedly distilled, the same products are obtained, until the acid is wholly decomposed. Or the acid may be wholly decomposed by the repeated distillation of a solution of it in water.

1194. The crystals of this acid do not alter by exposure to the air; but, when an aqueous solution of it is long exposed, it becomes brown, mouldy at the surface, and the acid is destroyed. Scheele; by treating the gallic with the nitric acid, in the usual way, converted it into the oxalic acid.

1195. From these circumstances it appears that the gallic acid, like the other vegetable acids, is composed of oxygen, hydrogen, and carbon. Berzelius's proportions of which are

Hydrogen . .	5·00
Carbon . . .	56·64
Oxygen . . .	38·36
	100·00

1196. It displaces the carbonic acid, and combines with alkaline substances, and the salts it



forms have obtained the name of gallates; but these have scarcely been examined. When dropped into water of baryta, strontia, or lime, it produces a bluish-red color, and occasions flaky precipitates consisting of the acid combined with these earths. It also precipitates solutions of glucina, yttria, and zirconia in acids, and this forms a test by which these are distinguished from the other earths.

1197. It changes the color, and produces precipitates in many of the metallic solutions. Richter has shown that it does not take iron from the sulphuric acid, unless it be assisted by a substance which has an affinity for that acid; and that it strikes a black color with all the oxides of iron. This, however, is denied by Proust and Berthollet, whose experiments seem to establish an opposite opinion.

1198. The gallic is reckoned one of the colorific acids, and it seems to produce this effect upon the oxides of metals, by making them approach to the metallic state. Gold it completely reduces, when presented to it in solution. Hence this acid is used as a test to distinguish metals, from the color it strikes when dropped into their solutions. But it is still extremely doubtful whether the gallic acid possesses this property in itself, or owes it to a portion of tannin in combination with it. Among the many processes for obtaining this acid, the following is pointed out by Mr. Brande as deserving notice:—Moisten bruised gall-nuts, and expose them for four or five weeks to a temperature of about 80°. A mouldy paste is formed, which is to be squeezed dry and digested in boiling water. It then affords a solution of gallic acid, which may be whitened by animal charcoal, and which, on evaporation, yields gallic acid crystals, in white needles. For an account of tannin and a further account of gallic acid, see ADDENDA to this ART.

BENZOIC ACID.

1199. This acid is obtained from a resin called Benzoin, or Benjamin, which abounds in several plants, but especially the stryax benzoë, a tree which grows in Sumatra, and other parts of the East Indies. It is likewise obtained from the balsam of Peru and Tolu; from vanilla, and liquid amber. It exists in the urine of children, and in that of some adults; but constantly in the urine of quadrupeds which live on grass and hay, especially in that of the horse and cow. It is supposed to exist in many of the grasses, especially in the anthoxanthum odoratum, which gives the fine scent to hay.

1200. This acid was first described, 1608, by Blaise de Vigenere, under the name of flowers of benzoin; but is now called benzoic acid.

1201. It is usually obtained by sublimation, from a quantity of coarsely powdered benzoin put into an earthen pot, the mouth of which is covered by a cone of thick paper, to which the benzoic acid attaches itself. The heat applied is that of a sand-bath, well regulated; because, without this, empyreumatic oil is apt to rise, and contaminate the acid. Neuman proposed moistening the benzoin with alcohol, and the acid rises after the alcohol is expelled. Geoffroy, in 1773, obtained this acid by digesting benzoin in hot water, which deposits crystals of the acid while the water cools.

1202. Scheele obtained the benzoic acid by dissolving benzoin in water mixed with lime, so as to be of the consistence of milk, poured upon the benzoin in small portions at a time. These were boiled together in a tinned pan, and constantly stirred, until the lime had combined with the acid. The liquor was then allowed to settle, and the limpid part decanted off. Successive additions of water were made, boiled, stirred, and decanted as before, until the whole acid was extracted in union with the lime. The milky lime-water ought not to be added to the benzoin in too large a quantity at a time, otherwise the latter is apt to coagulate, and will not yield its acid. All these portions of decanted liquor being added and filtered, and washed upon the filter with hot water, the acid in union with lime, is obtained in limpid solution. The liquid, being now considerably reduced by evaporation, must be strained into a glass vessel, to extract some which dissolves in it. When cool, muriatic acid is added, with constant stirring, until no precipitation ensues, or until the liquor begins to taste sour. The muriatic acid combines, and remains soluble with the lime; while the benzoic acid is precipitated in the form of a fine powder.

1203. Mr. Hatchett digested benzoin in sulphuric acid, and, from the compound, sublimed the benzoic acid by a gentle heat. By this process he obtained this acid in a high state of purity.

1204. Benzoic acid, thus obtained, is a light white powder; its taste acrid and somewhat bitter; its smell peculiar and aromatic, its specific gravity 0·667. It hardly affects vegetable blues, but reddens infusion of turnsol, especially when hot.

1205. With a moderate heat it melts into a soft brown spongy substance, and forms a radiated crust on its surface while cooling. A greater heat volatilises this acid, with a strong odor. In contact with flame it burns, without leaving a residuum. Distilled in close vessels, part sublimes unaltered, part decomposes into oil and carbureted hydrogen gas.

1206. It is scarcely soluble in cold water; but 480 grains of boiling water dissolve twenty grains of it: nineteen grains of which are deposited, when the water cools, in long white feather-like crystals.

1207. It dissolves in the concentrated sulphuric, sulphurous, and nitric acids, rendering them somewhat brown, and is precipitated from these acids by adding water. Acetic acid also dissolves it when hot, and drops it in crystals when it cools, in the same way as water. The other acids are not known to have any effect upon it.

1208. Alcohol dissolves it copiously, and boiling alcohol takes up its own weight of this acid It is precipitated from alcohol by the addition o water.

1209. It is not known to oxidise metals; but it combines with alkalis, earths, and metallic oxides, forming salts which are called benzoates. Berzelius gives its proportions as follows:—

Hydrogen . . .	5·16
Carbon . . .	74·41
Oxygen . . .	20·43
	100·00

1242. It changes turnsol to a red color; when heated, smells like newly baked bread; after being filtered, has a saltish bitter taste, but is not sour. After standing it grows turbid, and deposits a small quantity of sediment. At the temperature of 60° its specific gravity is 1·025. Evaporation rendered it turbid; and after standing it deposited small needle-shaped crystals among mucilaginous matter.

1243. When distilled it came over at the temperature of 200°, and a small quantity of extractive matter remained behind. The distilled liquor was transparent and yellowish; did not redden paper stained with turnsol, nor change to a blue, paper dipped in sulphate of iron after being moistened with solution of potassa; which showed it was not the prussic acid. About 100 grains of this distilled liquor being evaporated until it grew turbid, and set aside for a night, deposited acicular crystals, which, viewed through a lens, appeared in a group not unlike the umbel of parsley. They tasted bitterish.

1244. Another 100 grains being slowly evaporated to dryness, left a blackish matter behind, which did not evaporate when heated very hot on a naked fire; while oxalic acid was wholly dissipated by a much lower degree of heat. Hence this differs from oxalic acid.

1245. This acid combined and effervesced with the alkaline carbonates, and with that of lime. The salts it formed with potassa and lime, being heated red hot, were reconverted into carbonates. Hence it appears that this acid is of vegetable origin; but whether it be a peculiar acid, or a mixture of some known acid with extraneous substances, the quantity examined by Dr. Pearson was too small to enable him to ascertain.

1246. *Prussic acid* has been detected in water distilled from bitter almonds, in laurel leaves, in peach blossoms, and in the bark of the prunus padus. Vauquelin also discovered it in the kernels of apricots. For the mode of its artificial formation, and an account of its chemical habits and properties, see part III. of the present essay.

1247. *Mor-oxylic acid.*—This was discovered by Klaproth, combined with lime in small yellowish grains, which exude from the trunk of the white mulberry.

1248. To obtain this acid in a separate state, the small grains in which it occurs were decomposed by acetate of lead, and, to the insoluble precipitate, diluted sulphuric acid was added. From the liquid, fine needle-shaped crystals were obtained by evaporation, which had the taste of succinic acid, were not altered by exposure to air, dissolved readily in water and in alcohol; but did not, like succinic acid or its salts, precipitate metallic solutions. When heated in a retort, these crystals first yielded a little acid liquor, and then sublimed unaltered, adhering in colorless and transparent crystals to the top and neck of the retort.

The compounds which this acid forms with bases have been called moroxylates. *Henry.*

1249. *Phosphoric acid* exists in a greater or less degree in almost all vegetable substances. It is generally however in combination with an alkaline base.

1250. *Boletic acid.*—This acid has been noticed in the alphabetical order of the Encyclopædia as existing in the juice of the boletus pseudo-ignarius.

A class of salts from this acid may be termed boletates.

1251. *Zumic acid.*—Braconnot, the discoverer of the boletic acid, was likewise the first to observe this supposed new principle in rice, and Dr. Thomson proposed that it should be named zumic acid from ζυμη leaven. It has been since however nearly proved by Vogel to resemble too closely the lactic acid of Scheele and Berzelius to entitle it to distinct recognition.

1252. *Kinic acid.*—Vauquelin first procured this acid from crystals of a solution of Peruvian bark; it is said to be distinguishable from other vegetable acids, by its forming a soluble salt with lime, and by its not precipitating silver or lead from their solutions.

1253. *The meconic acid*, according to Robiquet, is best obtained from the residuum of the magnesian salt left undissolved in the process for extracting morphia. This acid is exceedingly soluble in water and alcohol. It reddens vegetable blues; but its distinguishing character is the power it possesses of producing an intensely red color in solutions of iron oxidised to the maximum. It does not seem to possess the medicinal or deleterious properties of opium when received into the stomach.

1254. *The isoguric acid* obtained from St. Ignatius's bean (Ann. de Chim. et Phys. viii.) seems nearly to resemble the malic.

An acid has been procured from galls which differing from the gallic has been named ellagic

SUGAR.

1255. Sugar seems to have been known in India and in China from the remotest times. During the crusades the Venetians brought it from India, and carried on a lucrative trade in sugar with the rest of Europe. It long continued to be used only as a medicine; but since it began to be extensively cultivated in the West Indies, it now enters largely into the composition of our food. In the East and West Indies it is extracted, by compression, from the arundo saccharifera, or sugar cane. In America it is extracted from the acer saccharinum, or sugar maple, but in too small quantity for exportation. In Prussia, and other parts of Germany, it has lately been extracted from the beet root; though this source of it seems to be too scanty ever to rival the sugar cane: sugar is also found in a variety of other plants, in grapes, and various fruits. The methods by which it is extracted, and the various purifications it undergoes before it is prepared for use, are detailed in another part of this work. See SUGAR.

1256. Pure sugar is of a white color, is not altered by the air, though in moist air it imbibes a little water. It has a strong sweet taste, but no smell. It is brittle, and easily reduced to powder. In the dark, when two pieces are rubbed against each other, they emit a strong phosphorescent light. It is very soluble in water, which at 48° dissolves its own weight of sugar. At the boiling temperature, water takes up any quantity of sugar. When water is saturated with sugar, it is called syrup, which is ropy and adhesive, and when spread upon paper it forms a sort of varnish, which water soon dissolves. When syrup is concentrated by boiling, and poured into pans which are kept in a room heated by stoves, so as to be scarcely supportable by animals, the sugar crystallises on small sticks placed in the pans for that purpose. The crystals are usually four or six-sided prisms, terminated by two-sided and sometimes by three-sided summits. This is called candied sugar.

1257. The alkaline earths combine with sugar, and superadd a bitter and astringent to its sweet taste. When lime is precipitated from it by sulphuric acid, it recovers its former sweet taste. The fixed alkalis destroy the sweet taste of syrup more effectually than lime, but if they be precipitated by alcohol the sweet taste is restored.

1258. The acids dissolve sugar, and the concentrated acids decompose it. Sulphuric acid converts it into water, acetic acid, and a bulky residuum of charcoal, of a black color; while the sulphuric is converted into the sulphurous acid. Nitric acid converts it into the malic and oxalic acids, as stated when treating of these acids. Liquid chlorine acid converts it into malic acid, and is itself changed into the common muriatic acid. Muriatic acid gas makes it assume a brown color, with a strong smell. The vegetable acids dissolve but do not seem to alter sugar. Alcohol dissolves from about a twelfth to a sixteenth part of its weight of sugar. When left undisturbed, the sugar separates in beautiful crystals. A moderate quantity of sugar retards the coagulation of milk, but a large quantity causes it to coagulate. The hydro-sulphurets, sulphurets, and phosphurets of alkalis and alkaline earths, decompose sugar, and change it into a substance resembling gum.

1259. When heated, sugar melts, swells, becomes brownish-black, and emits air bubbles, with a peculiar smell to which the French have assigned the name of caromel. With a red heat it takes fire with a kind of explosion. When distilled, it first yields water, then pyromucous acid, which is merely a compound of oil and impure acetic acid; afterwards empyreumatic oil and a bulky residue of charcoal remains in the retort. Mr. Cruickshanks introduced 480 grains of pure sugar into a retort, and, after heating them to redness, obtained the following products :—

Pyromucous acid with a drop or two of oil	270 grains
Charcoal	120
Carbureted hydrogen, and carbonic acids	90
	480

1260. From these experiments it is inferred that sugar is a vegetable oxide, composed entirely of oxygen, carbon, and hydrogen. The proportions Berzelius states to be

Oxygen . . .	49·4
Carbon . . .	44·5
Hydrogen . . .	6·1
	100·0

SARCOCOLL.

1261. It is said to exude from the pænea sarcocolla, a shrub which is indigenous in the north-eastern parts of Africa. It comes to Europe in the shape of oblong grains, from the size of a pea to that of a grain of sand. Its color is yellow, and sometimes reddish-brown, and it resembles gum-arabic. It smells somewhat like annise seed. It contains four different substances, of which the pure sarcocoll is by far the most abundant. The sarcocoll is separated by solution in water and alcohol, when it assumes the appearance of jelly. It amounts to about $\frac{5}{8}$ths of the mass. When the liquor is evaporated, it assumes the appearance of brittle brown cakes like gum. Its specific gravity is 2·1684. Its taste is sweet, but leaves an impression of bitterness. It seems to be a compound of sugar and gum, but partaking more of the properties of sugar.

1262. *Liquorice* seems to be a variety of sarcocoll. It is obtained, by expression, from the roots of the glycyrreza glabra, a plant cultivated in the south of Europe, and of Britain. The juice is thickened by boiling. It comes from Spain in rolls, wrapped in bay leaves, and is afterwards purified, and formed into small cylinders, about the size of a goose quill, which are sold under the name of refined liquorice. It is black and glossy, and besides sugar, contains about a third of mucilage, and some charcoal, which is not found in pure sarcocoll. These may be regarded as varieties of sugar, or rather sugar combined with other substances.

1263. Robiquet found the following ingredients in liquorice :—

1. Starch
2. Gluten
3. Liquorice sugar
4. Phosphate and malate of lime and magnesia
5. An acrid oil
6. A substance like asparagin
7. Woody fibre.

ASPARAGIN.

1264. This substance was detected by Vauquelin and Robiquet in the juice of asparagus. The juice, having been squeezed out, is evaporated to the consistence of syrup, and set aside. Various crystals appear, and, among others, those of asparagin are white and transparent, and have the figure of rhomboidal prisms. It is hard and brittle; its taste cool and slightly nauseous. Does not dissolve in alcohol; in hot water dissolves readily, but sparingly in cold water.

GUM.

1265. Gum and mucilage are commonly confounded together, though Hermstadt shows there is a shade of difference betwixt them, and that gum may be separated from mucilage by dropping into a strong solution of them sulphuric acid. The mucilage coagulates, while the gum remains dissolved, and may be decanted off. Gum exudes in the form of a tasteless juice from a great variety of trees, especially from those of the mimosa species. What is called gum arabic exudes from the mimosa nilotica. It also exudes from the cherry, the wild cherry, and the plumb-tree of this country. It is usually in small pieces, like tears, hard, and so brittle that it can be reduced to powder. It is colorless when pure, but is commonly of a yellowish tinge. It has neither smell nor taste, and its specific gravity varies from 1·3161 to 1·4817. Exposed to the sun's rays it becomes white. Its solution in water is called mucilage, which is thick and adhesive, and is often used to give lustre and stiffness to linen. When spread out it soon dries, and assumes the appearance of a varnish, but water soon renders it glutinous, or washes it away. When the water is evaporated, the gum is obtained unaltered. When its solution is exposed to the air, it soon becomes mouldy on the surface, but it may remain several years without putrefaction. At last, however, the smell of acetic acid becomes perceptible in it. Exposed to heat, gum softens and swells, but does not melt. Air-bubbles are emitted, it becomes black, and when reduced to charcoal emits a low blue flame. When entirely consumed, a small quantity of white ashes remains, composed chiefly of the carbonates of lime and potash. Concentrated chloride of iron dropped into a strong solution of gum, converts it into a brown semi-transparent jelly, which is not very soluble in water. Silicated potash produces a white flaky precipitate in solution of gum, while the liquid remains transparent. This forms a very delicate test of gum in solutions.

1266. Liquid potassa first converts gum into a curd, and then dissolves it; but it afterwards reverts to its curdled state. Lime-water and ammonia likewise dissolve gum, which may afterwards be separated little altered. Charcoal powder gives solution of gum a black color, which cannot be removed by filtration. But, if the charcoal be in great quantity, it retains the whole of the gum, and the water passes clear.

1267. The vegetable acids dissolve gum without change. Sulphuric acid decomposes it, and there remains about twenty-nine per cent. of charcoal. Some tannin is formed with water and acetic acid. Strong muriatic acid forms a brown solution, from which some charcoal falls. If this solution be saturated with ammonia, evaporated to dryness, and the residue digested in alcohol, a brown substance is extracted, which, when evaporated to dryness, bears a strong resemblance to sugar. Chlorine converts gum into citric acid. Nitric acid, with heat, converts it into sacclactic acid, malic acid, and oxalic acid.

1268. Gum is insoluble in alcohol, and, when alcohol is dropped into its solution, the gum is precipitated in white flakes. Gum and sugar readily unite when both are dissolved in water. Alcohol dissolves a great part of the sugar in the mixture, and leaves a white substance composed of gum and sugar, resembling the material of which the nests of wasps are composed.

1269. Gum, according to Dr. Ure's analysis, consists of

Carbon	35·294
Oxygen	58·823
Hydrogen	5·883
	100·000

Whether it contains a trace of nitrogen seems uncertain.

1270. Besides gum arabic, there are various other species of gum in common use, as gum senegal, and gum tragacanth, the gum of the cherry and plumb-tree, &c. A mucilage also abounds in the leaves and roots of many plants, which might be extracted and used as gum. The bulbs of the hyacinth contain so much mucilage, that when dried they may be used as gum. George, of Petersburg, found that the stringy lichens yield a mucilage which lord Dundonald proposed to employ as a substitute for gum, and it is much used by the calico-printers for that purpose. The fuci, or sea-weeds, yield a mucilage which seems capable of answering the purposes of gum, could it be deprived of those deliquescent salts which the fuci imbibe from sea-water.

1271. Gum, in the state of mucilage, is a very nutritive food. It is often used as a paste; and the calico-printers use great quantities of it to give consistency to their colors, and prevent them from spreading upon the cloth. For the same reason it is employed in the making of ink. It forms the basis, or vehicle, of many mixtures applied in medicine.

JELLY (*Vegetable*).

1272. If the juice of bramble-berries, rasp-berries, currants, and a variety of other fruits, be squeezed through a cloth and set to rest, part of it coagulates. If the liquid part be poured off, and the coagulum washed with cold water, jelly is obtained nearly in a state of purity. Its color is that of the berries from which it was squeezed. It is scarcely soluble in cold water, but very soluble in hot water, and, when the solution cools, it again coagulates into a jelly. If long boiled it does not afterwards coagulate. This is the reason why, in making currant and other jellies, if a sufficient quantity of sugar be not added to absorb all the juice of the fruit, if they attempt to concentrate it by long boiling, it remains ever after liquid, and no jelly is formed. Jelly combines readily with alkalis; nitric acid converts it into oxalic acid, with hardly separating azotic gas. Its ultimate analysis has not been attempted.

ULMIN.

1273. We know nothing of this substance except from Klaproth, to whom a specimen was sent from Palermo in 1802, and he conjectures it to be an exudation from the ulmus nigra. It is of a black color, resembles gum in being readily soluble in water, but differs from it in the solution not being ropy, nor forming a paste. It agrees with gum in being insoluble in alcohol and ether, and in being precipitated from aqueous solution by alcohol in light brown flakes. The nitric acid and chlorine convert it into a resin, insoluble in water. In this respect it seems to be allied to the volatile or essential oils, which are changed into resins by being subjected to the same processes. When burnt it emits little smoke or flame, but leaves a spongy charcoal, which, when burned in the open air leaves a little carbonate of potassa.

INULIN.

1274. Was extracted by Rose by boiling the roots of the inula helenium, or elacampane. The decoction, after standing some time, deposits the inulin in the form of white powder like starch. As far as appears respecting this substance, it seems to be only a variety of starch, or starch combined with some other vegetable product, differing from starch in this in yielding none of the waxy matter which is formed when starch is digested with the nitric acid.

STARCH.

1275. Starch is commonly made from wheat, and the process employed by manufacturers is to steep the wheat in cold water, the purest that can be got, until it becomes soft, and yields a milky juice when squeezed. It is then put into coarse linen bags and pressed in a vat filled with water, which forces a milky juice through the cloth, containing much starch; and the pressure is repeated as long as the wheat yields any milky juice. The starch gradually falls to the bottom while the liquid gradually ferments into alcohol and vinegar, partly at the expense of the starch. The vinegar dissolves impurities, and the fermented liquor being poured off, the starch is repeatedly washed with water. It is afterwards dried with a moderate heat, and during the drying it splits into columnar masses which affect the quadrangular figure·

1276. Wheaten starch has a fine white color, with an inclination to blue. It has hardly any smell or taste, and when dry is not injured by long exposure to the air. It falls in powder, but forms a sort of emulsion with cold water; and forms a jelly with boiling water, which may be diluted by adding more water. When the water cools, the starch slowly falls to the bottom. Linen dipped into a solution of starch, and suddenly dried. acquires a considerable degree of stiffness. Hence one great use of starch is to convey a degree of stiffness, and a smooth skin to linen after it is bleached, and to linen clothes in the laundry. When the solution is evaporated to dryness, a brittle opaque substance is obtained, differing in appearance from common starch, probably owing to a portion of water retained in its composition. If starch be exposed to damp air, its surface becomes mouldy, and it acquires an acid taste.

1277. The infusion of nutgalls combines with starch, and throws it down from every solution. The precipitate is again dissolved by heating the liquid to 120°. The solution of nutgalls and starch is transparent, and has nearly the color of the nutgall infusion. Thus infusion of nutgalls forms the best test of the presence of starch in any vegetable decoction. Potassa triturated with starch, and a little water, forms a semi-transparent jelly. On adding more water, an opal colored solution is obtained, from which the starch may be thrown down by an acid. When muriatic acid is used, an aromatic odor is produced. Sulphuric acid dissolves starch slowly, with such evolution of charcoal that if the quantity of starch be considerable, the compound becomes solid. At the same time a smell of sulphurous acid is perceptible, shewing that part of the sulphuric acid is decomposed. Diluted sulphuric acid dissolves starch with heat, without apparent decomposition as the starch may be thrown down by alcohol. Nitric acid dissolves starch, without forming oxalic acid,unless when assisted by heat, in which case both oxalic and malic acid are formed. In this respect starch differs from sugar. Strong muriatic acid also dissolves starch slowly, without effervescence.

1278. When thrown upon a hot iron, starch melts, swells, froths, blackens, and burns with a bright flame like sugar, but it does not explode like the latter. At the same time it emits much smoke. When distilled it yields acidulous water empyreumatic oil, and much carbonic acid and carbureted hydrogen gas. The charcoal which remains is wholly consumed when burnt in the open air; a proof that it contains little or no earth.

1279. Starch is found in a great variety of plants, and in different parts of plants. It is most commonly found in the seeds and bulbous roots of plants which are used as food. The seeds of several trees contain it as the chestnut,horse-chestnut, and acorn. Having already stated the mode by which it is obtained from wheat; we shall briefly enumerate the other sources from which it is commonly obtained.

1280. *Potatoe starch* is made by grating down the potatoe, and placing the gratings upon a fine sieve over a tub or vat. Water being poured upon them, washes through a great quantity of starch. After it has time to settle, the acidulous liquor is poured off, and the sediment well washed with pure water. If the sediment be sufficiently washed, it is starch of a much brighter color, and which goes much farther, than wheaten starch. Though heavier than wheaten starch, it makes a much more beautiful hair powder. In one of the late bad seasons when the starch manufactories and the distillation from grain were stopped, and when a great part of the potatoe crop was frozen in the ground by early frost, George Robertson esq. author of the Agricultural Surveys of Edinburgh and Mearns shires, made excellent starch from frosted potatoes. Having first cleaned them he bruised them into a pulp, and then treated them as above described. Though the potatoes were not half ripe, he calculated they might yield £50 value per acre in starch. This deserves the attention of agriculturists, as frozen potatoes are good for nothing else.

1281. Arrow is a farina or starch, from the fœcula of the marantha arundinacia. Salop is the farina obtained from several varieties of the orchis.

1282. *Sowens* is a species of starch made from the husks and coarse particles of oat-meal. The acid liquor being poured off, the starch, with a portion of the acid, is boiled in a pot; after which it forms a coagulum on cooling, well known in Scotland as a nutritive and agreeable species of food.

1283. *Sago* is extracted from the pith of several species of palm trees in the Moluccas, Philippines, and other islands in the East Indies. The palm being cut into pieces, the wood is split off, one side exposing the pith in the hollow of the tree. Upon this cold water is poured and the pith well stirred, which separates the starch from the fibrous part; and what runs off is passed through a fine sieve or searce. The starch is now allowed to settle, the water is poured off, and when the sediment is half dry it is granulated by being passed through a funnel. It is said to acquire its gray color by being dried by artificial heat. Sago is well known as a very nourishing food.

1284. *Cassava* is prepared from the roots of an American plant, the iatropha manihat. They are peeled and pressed in a sack composed of rushes. A juice is forced out which is a deadly poison, and employed by the Indians to poison their arrows. This juice gradually deposits a white starch, which, being well washed, is innocent. What remains in the sack is also chiefly composed of starch, and being dried in smoke, and passed through a sieve, from the starch thus obtained the cassava bread is formed, which is often brought to Europe, and is highly nutritive. Tapioca is prepared from the same plant.

1285. The acid water poured from sowens, and what is produced by the starch makers, is greedily devoured by swine who fatten upon it. It has also been lately discovered that the grains and dregs of distillers and brewers go much farther in fattening all kinds of cattle, after they become sour, than when they are consumed in a sweet state. It has hence been inferred by rural economists that all kinds of vegetable food, which admit of it, should be acidified before they are presented to animals.

1286. Berzelius makes starch to consist of

Carbon . . .	43·481
Oxygen . . .	49·455
Hydrogen . .	7·064
	100·000

Dr. Ure's proportions give rather more oxygen.

INDIGO.

1287. This beautiful pigment and dyestuff is extracted from the leaves of different species of plants, as the indigofera argentea, or wild indigo, which yields the best, though the smallest quantity; from the indigofera disperma, or guatimala indigo; and the indigofera tinctoria, or French indigo, which though of inferior quality yields the largest quantity, and is hence generally preferred by the planters. The plants are annually raised from seeds sown in trenches about a foot asunder. In the West Indies they are sown in March, and the plants are ready for cutting in May. Here four cuttings are often obtained in one year; but in South America they require six months to attain maturity, and they seldom obtain more than two cuttings, often only one.

1288. The plants are cut with sickles and placed in a cistern about sixteen feet square, where they are pressed down with loaded planks. They are then covered with water to the depth of four or five inches. A fermentation takes place, which Le Blond thinks succeeds best with a temperature about 80°. The water becomes turbid, assumes a green color, while volatile alkali and carbonic acid gas are emitted. Much attention is paid to this fermentation, because if carried too far the color is destroyed, if checked too soon, much of color remains in the plants. When completed, the liquor is let into a smaller cistern placed below the former, called the battery, where it is violently agitated by levers moved by machinery, about fifteen or twenty minutes. Flocculi begin to appear, and the liquor seems curdled. A quantity of lime water is now poured in, which is supposed to prevent putrefaction, or to absorb carbonic acid gas, and hasten the deposition of the color. The pigment is now allowed to subside; after which, the water being drawn off, it is drained in small linen bags, and then dried in small wooden boxes in the shade.

1289. Dr. Roxburgh obtained indigo from the leaves of the merium tinctorium, a tree very common in Hindostan. He kept the leaves in a copper full of water, at the temperature of 100°, until they assumed a yellowish-blue color, and the liquor a deep green color. After which the liquor was drawn off, and treated as in the former case. Several chemists have also obtained indigo from the isatis tinctoria, or woad, a plant which grows wild in many parts of this country, and is much used as a dye-stuff. They treated the woad in the same way as was just described respecting the indigofera tinctoria. Some think the ancient Picts used this plant for dyeing their skins of a blue color. Chaptal elicited a blue color from goats-rue, sainfoin, chick peas and lucern, when treated after the manner of indigo. But he was not able to precipitate the color, and he ascribes his failure to an excess of extractive matter, which caused the liquor to froth, and kept the color suspended.

1290. Indigo seems to have been known in the East Indies, as its name imports, from the earliest times. It was first brought to Europe, and its uses made known by the Dutch, in the sixteenth century. It may seem very strange that it was universally cried down as a destructive dye. Its use was prohibited in England by queen Elizabeth, and the prohibition was not removed until the reign of Charles II. Colbert restricted the French dyers to a limited quantity of it. In Saxony it was prohibited, and the reasons assigned in the edict were that it was a corrosive substance, only fit to be *food for the devil*. It was afterwards cultivated in Mexico and the West Indies, and these countries long supplied Europe with this article. Some of our enlightened countrymen have lately restored the East Indian indigo to its ancient reputation, and it is now imported from the east in considerable quantities.

1291. Indigo is a light, compact, friable substance, of a deep blue color. The tints of its surface vary according to the manner of its preparation, between copper, violet, and blue. The lightest indigo is the best; and it is always mixed with other matters, derived either from the plant, or from carelessness in its manufacture. Bergman found the best indigo he could procure to contain the following ingredients:

47	pure indigo
12	gum
6	resin
22	earth
13	oxide of iron
100	

The earth consisted of

10·2	barya
10·0	lime
1·8	silica
22·0	

Proust found a considerable portion of magnesia in the indigo he examined; and it is probable the earthy ingredients vary in different specimens. Indigo, when freed of these extraneous matters, is a soft powder, of a deep blue color. It is not altered by air or water, though Bergman observed, that when long kept under water, it gave signs of putrefaction. Heated, it burns with a bluish red smoke, and a faint white flame, and leaves earthy ashes.

1292. Concentrated sulphuric acid dissolves it readily, and the sulphate of indigo, thus formed, is called liquid blue. When much concentrated it appears black, but when diluted, is of a fine blue color. A single drop of the preparation communicates a blue color to many pounds of water. Heated sulphuric acid, or the acid in which sulphur has been boiled, dissolves indigo more readily than the pure acid. If the sulphate be poured into boiling water it becomes green, but if into cold water it exhibits a fine blue color.

1293. From the analysis of the precipitate produced in this solution by potassa and its sulphate, Mr. Crum considers it to be a compound of sulphate of potassa with a peculiar principle, which he names cerulin, and the precipitate itself he calls ceruleo sulphate of potassa. Cerulin it seems has many properties analagous to tan. If the solution of indigo in sulphuric acid be kept till it has lost its yellow color, and become blue, the addition of water precipitates a purple substance quite different from indigo. From the property possessed by this substance of becoming purple-colored on the addition of certain salts, Mr. Crum terms it phenecin. *Henry.*

1294. Nitric acid attacks indigo with great violence, unless it be largely diluted with water. When of the specific gravity 1·52, it sets indigo on fire. Upon 100 grains of indigo, Mr. Hatchett poured an ounce of nitric acid, diluted with two ounces of water. When the effervescence began to subside, the liquid was evaporated to dryness on a sand-bath; water being now poured on, formed a beautiful yellow solution, of a very bitter taste. It appeared that artificial tannin had been formed, which, when combined with indigo, forms this color. When four parts of nitric acid are boiled upon one part of indigo, it is converted into tannin, oxalic acid, benzoic acid, and bitter principle. The other acids only dissolve indigo, as far as yet known, after it is precipitated from the sulphuric; and with it they form a solution of a blue color. The fixed alkaline solutions, also, only act upon indigo after it is precipitated from a previous solution. The alkaline solutions are at first green, but afterwards become yellow. Ammonia and the alkaline earths produce nearly the same effects.

1295. When indigo is mixed with bran, woad, Brasil wood, and other substances which readily ferment, it acquires a green color, and easily combines with lime or potassa. With such mixtures the vat is commonly prepared when indigo is used as a dye. See DYEING. It would appear that the blue color of indigo is owing to an excess of oxygen in its composition; for such substances as powerfully attract oxygen, change it to green, to yellow, or render it colorless. When cloth comes out of the vat, it is at first green, but soon becomes blue by attracting oxygen from the air. If the agent change it to yellow, it never recovers its first color, but the yellow remains permanent. On the other hand, when indigo is mixed with manganese, and other bodies which freely impart oxygen, its yellow color is changed, or destroyed. Mr. Dalton's analysis of indigo gives

Carbon . . .	75·5
Azote	7·7
Oxygen . . .	12·3
Hydrogen . .	3·5
	100·0

For further information on the subject of indigo, see the article DYEING, and PRINTING, CALICO.

GLUTEN.

1296. Beccaria, an Italian philosopher, first discovered, that if wheat flour be made into dough with a little water, and then kneaded and worked with the hand under a rill of water, or stream from a tea-kettle, starch and mucilage are washed off. After the water passes off clear, there remains a substance called gluten. It is of a gray color, ductile and elastic, and may be drawn to twenty times its original length without breaking. When made thin it is white, and very much resembles animal tendon, and adheres so tenaciously, that it is often employed to cement broken pieces of china. It has scarcely any taste, has a peculiar smell, and after exposure to the air it assumes a brown color, and seems to be coated with oil. It dries in the air, becomes hard, brittle, slightly transparent, assumes a dark brown color, and resembles glue. Its fracture is then vitreous, or resembles that of glass. Fresh gluten obstinately retains a portion of water, to which it owes its elasticity and tenacity. After being boiled in water it loses both those properties.

1297. It is slightly soluble in cold water, and is precipitated when the water is heated. When kept moist it swells, undergoes fermentation, and emits bubbles of hydrogen and carbonic acid gases. At the same time it emits the smell of putrifying animal bodies. Cadet kept it twenty-four days in a damp room. It first assumed a crust, which being removed, its interior was converted into a substance resembling bird-lime, Rouelle, jun. ascertained, that if it be longer kept in such a situation, it assumes the smell and taste of cheese. It is blown up with cells, which contain a liquor consisting of ammonia and vinegar, which is commonly found in blown cheeses.

1298. When kept some months under water it becomes sour and fetid, swells, gives out carbonic acid, and rises to the surface. Part of it is now dissolved in the water, and, if sugar be added, the liquor becomes vinegar without fermentation, or admission of air.

1299. If the bird-lime gluten of Cadet be triturated with alcohol, and then mixed with a sufficient quantity of that liquid, a portion of it is dissolved, and the compound forms an excellent varnish for covering paper or wood. It may also be employed to cement china; and mixed with paints, especially vegetable colors, it forms an excellent ground. When mixed with lime it forms a good lute, and linen dipped into it adheres strongly to other bodies.

1300. Acetic acid dissolves gluten readily, and the gluten of Cadet it renders fit for making a varnish, but not for mixing with colors. Concentrated sulphuric acid converts gluten into charcoal, with formation of water and ammonia, while inflammable air escapes. Nitric acid, when heated upon it, causes an emission of azotic gas; while oxalic and malic acids are formed, and oily flakes appear in the liquor. Alkalis and acids alternately precipitate gluten with considerable change in its qualities.

1301. Moist gluten, suddenly dried, swells to a great size. Dry gluten burns precisely like feathers or horn. When distilled, water comes over impregnated with ammonia and empyreumatic oil. The charcoal which remains is with difficulty reduced to ashes. While fermenting, its flames blacken silver and lead, showing that sulphur is present. Though its constituents have not been minutely examined, it appears to be composed of oxygen, hydrogen, carbon, and azote. These circumstances have led to a conclusion that it possesses all the properties of an animal substance.

1302. Gluten exists in great abundance in wheat, and may easily be extracted from its flour. Sir H. Davy discovered a larger proportion of it in North American wheat than in English wheat. It has also been found in a great variety of other seeds, in the roots of many plants, and in all the leaves of plants which have been examined. It is found in the berries of many plants, such as those of the elder, the grape, &c. Proust did not find any of it in the potatoe. This substance seems to be the basis of bread, and of yeast. The vinous fermentation seems to be caused by the reciprocal action of gluten and of sugar upon each other. When the juice of the grape is deprived of its gluten, it does not ferment into wine; when this ingredient is restored it ferments readily.

1303. *Gliadine and Zimome*, (from Dr. Henry's Elements.) From the experiments of M. Taddei, an Italian chemist, it appears that the gluten of wheat may be decomposed into two principles, one of which he has distinguished by the name of gliadine, from γλια, gluten, the other zimome, from ζυμη, a ferment. To separate them, fresh gluten must be kneaded with repeated portions of alcohol, as long as that fluid becomes milky by dilution with water The alkaline dissolves the gliadine and leaves the zimome.

1304. By evaporating the alcoholic solution, gliadine is obtained, forming a brittle, straw-yellow, slightly transparent substance, with a weak smell, resembling that of the honey-comb; and when gently heated, emitting an odor similar to that of boiled apples. In the mouth it becomes adhesive, and has a sweetish and balsamic taste. It is pretty soluble in boiling alcohol; but the greater part precipitates as the alcohol cools. It softens, but does not dissolve in cold water. Its alcoholic solution becomes milky on adding water, and is precipitated in white flocks by alkaline carbonates. Dry gliadine dissolves in caustic alkalis and acids. It swells on burning coals, and then contracts like animal matter. It burns with a bright flame, and leaves a portion of charcoal, which is difficult to be incinerated.

1305. Zimome is obtained pure by boiling gluten in alcohol, or by digesting it in that fluid till it ceases to give out gliadine. There remains a shapeless mass, which is hard, tough, destitute of cohesion, and of an ash-white color. After being washed with water it recovers its viscosity, and becomes brown when left in contact with air. It is specifically heavier than water. It does not ferment like gluten, but putrifies, exhaling a fœtid urinous odor. At a boiling temperature it is soluble in vinegar and in the mineral acids. It combines with potass, and forms a kind of soap. Lime water, and solutions of alkaline carbonates, harden it, and give it a new appearance. It inflames when thrown on red hot coals, and emits an odor similar to that of burning hair or hoofs. *Ann. of Phil.* xv. 39. xvi. 88.

1306. M. Taddei has since discovered that powdered guaiacum is a test of the presence of zimome. When well kneaded with good wheat flour and a little water, and then exposed to the air, the guaiacum becomes a very fine blue color. Starch does not evolve this color, and bad flour only in a very small degree. But when guaiacum is worked up with gluten, and still better with pure zimome, the color instantly appears, and is a most superb blue. Guaiacum, however, does not become at all colored by zimome, unless the contact of oxygen be allowed. The powder of guaiacum is, therefore, a re-agent, capable of detecting the injurious alteration which flour sometimes undergoes by the spontaneous destruction of its gluten, and also of ascertaining, in a general way, the proportion of that principle. *Quar. Jour.* viii. 377.

ALBUMEN.

1307. This name has been assigned to the whites of eggs, and to all glary tasteless substances, which, like them, coagulate when heated nearly to the boiling point. In 1780 Scheele affirmed that many plants contained a substance analogous to curd. Vauquelin lately discovered that albumen abounded in the juice of the papaw tree, the carica papaya of botanists, which grows in Peru, and the Isle of France. Proust has ascertained that almonds, and other kernels from which emulsions are made, contain a substance resembling curd. Now curd and albumen seem nearly allied; but, as we shall have occasion to treat of albumen under the head of animal substances, we forbear entering into a description of its properties in this place.

BITTER PRINCIPLE.

1308. Many vegetable substances have an intensely bitter taste, and are used in medicine by brewers, &c. This is particularly the case with the quassia amara and excelsa, the common quassia of the shops, with the roots of the gentiana lutea, common gentian; the leaves of humulus lupulus, the hop; the bark and wood of spartium scoparium, common broom, the flowers and leaves of anthemis nobilis or chamomile, and many others unnecessary to be mentioned. This has led chemists to suppose that the peculiar taste and effects of these substances were owing to a distinct species of matter, which they distinguish by the name of the bitter principle. It is certain, however, that there are shades of difference between the bitters extracted from different vegetables, and it is not certain whether the bitter principle have been obtained free of all extraneous mixture.

1309. That which is considered the purest is obtained by digesting quassia some time in water, and then evaporating to dryness by a low heat. A brownish-yellow substance is left, somewhat transparent, without smell, but of a very bitter taste. At first it is ductile, but at last becomes brittle. It is very soluble in water and alcohol. It is only precipitated from solution by nitrate of silver, and acetate of lead; and the last is used as a test to detect the bitter principle in liquids.

1310. A second species approaches, in its properties, to artificial tannin, and is distinguished by striking a green color with iron, and by precipitating this metal from concentrated solutions. Bouillon la Grange found this species in the flowers of the arnica montana. It is also thought to exist in the absynthium vulgare (wormwood), juniperus sabinus (sabine), ruta graveolens (rue), anthemis nobilis (chamomile), achillea millefolium (milfoil).

1311. The third species is artificial, and it may be obtained by treating the white willow with nitric acid. Mr. Hatchett obtained it by treating indigo with the same acid. It is of a deep yellow color, and of a very bitter taste, is soluble both in water and in alcohol, and possesses the property of dyeing silk, woollen cloth, and cotton, of a permanent yellow color. It possesses many properties of an acid, crystallises in elongated plates, and forms with alkalis crystallisable salts. With potassa it forms crystals less soluble than pure bitter principle, which burn like gunpowder when thrown upon ignited charcoal, and fulminate loudly with a purple light when struck upon an anvil. Ammonia deepens its color, and produces a copious deposition of fine yellow spicular crystals. It is probable this bitter is nearly allied to artificial tannin.

EXTRACTIVE PRINCIPLE.

1312. Chemists have long applied the name of extract, or extractive, to all those substances which were obtained from plants by means of water, and which, after the water was evaporated, remained in a dry state. But the term is now taken in a more limited sense, and as the term formerly included gum, jelly, and various other bodies, it seems now restricted to such of the coloring matters of plants as can be extracted by water. But as this extract has not been obtained in a pure state, extractive principle is preferred, which indicates the substance which conveys to the extract its discriminating properties.

1313. According to Hermbstadt, this principle is obtained in greatest purity by infusing saffron some time in water, filtering the solution, and evaporating to dryness. The solution, from whatever plant obtained, is always colored. Extractive principle is soluble in water and alcohol, but not in ether. When the water is slowly evaporated, the extract obtained is solid and transparent; but when the evaporation is rapid it is opaque. It has always a strong taste, which differs according to the plant from which it is obtained. In consequence of repeated solutions and evaporations, it acquires a deeper color, and ceases to be soluble in water. This is supposed to be owing to the absorption of oxygen from the atmosphere, for which this principle has a strong affinity. If left exposed to the atmosphere, it putrifies and is destroyed. When chlorine is poured into a solution of this principle, a dark yellow precipitate is thrown down, which is insoluble in water, but soluble in hot alcohol.

1314. This principle unites with alumina, and forms an insoluble compound. This is the reason why alum is so much used for fixing colors upon cloth. The color is combined with some substance which decomposes alum, and the cloth being previously dipped in a solution of alum, when presented to the color in solution, a mutual decomposition ensues. The acid of the alum combines with the solvent of the color, while the color combines with the alumina, already adhering to the cloth, producing a triple compound of cloth, alumina, and color. For many operations acetate of alumina is preferable to common alum. The alkalis readily form soluble compounds with extractive. Muriate of tin is often used instead of alum to fix colors, and it operates in the same manner. But it has been lately found that if the cloth be previously soaked in chlorine, and then dipped in a solution of extractive, the color becomes more effectually fixed in the cloth than if either alumina, muriate of tin had been employed. It would hence appear that no other mordant is necessary to fix the colors of extractive, than combining them with oxygen. Many of the metallic salts combine with extractive, as well as muriate of tin, and precipitate it from solution. Most of the oxides produce the same effect.

1315. Extracts yield, by distillation, an acid liquor impregnated with ammonia. Lime causes their solution to exhale the smell of ammonia, and ammonia precipitates from the same solution, lime combined with insoluble extractive. It has been observed that this principle is more abundant in old than in young plants. There are doubtless various species of extractive, which differ according to the plants from which they are derived. But these differences have not yet been sufficiently ascertained. Beside ulmin, the bitter principle, asparagin, inulin, and other principles, to which we elsewhere refer, some modern writers include the following under the head of extractive matter. Dr. Bostock however, and others, have doubted whether after all there be any distinct principle to which the name of extract or extractive can be legitimately applied. The substances to which we allude are hematin from logwood; polychroite from saffron; picrotoxin from cocculus Indicus; nicotin from tobacco; emetin from ipecacuanha; medullin, a name applied to the pith of the sunflower; and fungin, a substance contained in the mushroom.

Narcotic Principle, and recently discovered Vegetable Principles, chiefly of an Alkaline Nature.

1316. It is well known that the milky juices of the poppy, the lettuce, and other plants, and the decoction of others, as of the leaves of the digitalis purpurea, excite sleep, and, if taken in sufficient quantity, produce death. This led to a supposition that there is some peculiar substance in these plants, which, though mixed with other materials, produces the effects described. To this substance was annexed the name of the narcotic principle. A substance being extracted from opium, which possesses these properties in the highest degree, this substance was held to be the narcotic principle in the highest degree of purity. Opium is obtained from the papaver album, or white poppy, which is cultivated in Egypt, and in many of the Asiatic nations. The poppies are planted in fertile soil, and well watered. After the seed capsules have attained nearly their full size, longitudinal incisions are made in them during three or four successive evenings. From these a milky juice issues, which soon concretes, and being scraped off, and wrought into cakes, forms the opium of commerce.

1317. Opium is a tough brown substance, has a peculiar smell, and an acrid nauseous bitter taste. It burns readily and strongly, and is a compound of various substances, namely, sulphates of lime and potash, oil, resin, extractive matter, gluten, &c. Digested in water, several of its constituents are dissolved; and, when it is evaporated to the consistence of syrup, a precipitate appears, which is increased by diluting the solution with water. The precipitate consists chiefly of resin, oxygenised extractive, and narcotic principle. This being digested in alcohol, the resin and narcotic principle only are dissolved. The narcotic principle falls in crystals as the solution cools, but still colored with resin. But by repeated solutions and crystallisations it may be obtained tolerably pure. If the residuum of opium which remains undissolved by water, be digested in alcohol, a considerable portion of narcotic principle is obtained, combined with resin. This also may be purified by repeated crystallisations.

1318. In its purest state, the narcotic principle is of a white color. It crystallises in rectangular prisms with rhomboidal bases. It has neither taste nor smell. It is soluble in about 400 parts of boiling water, but is insoluble in cold water. It is soluble in twenty-four parts of boiling alcohol, and in 100 parts of cold alcohol. Hot ether dissolves it, but drops it when it cools. Heated it melts like wax, yields a yellow, acrid, anu aromatic oil, some water, and carbonate of ammonia. At last carbonic acid gas, carbureted hydrogen gas, and ammonia ccme over. A bulky coal is left, which contains some potass. It is soluble in all the acids, from which it is precipitated by the alkalis.

1319. Dèrosne tried it upon dogs, and found it to be more powerful than opium. Its bad effects were counteracted by causing the animals to swallow vinegar. Dèrosne supposes that the vinegar operates by dissolving the narcotic principle; and vinegar is known to counteract the effects of opium when taken in excess.

1320. The narcotic principle of opium, and other vegetables possessing narcotic power, has, since the publication of Dèrosne's Memoirs, been investigated by Sertürner and Robiquet. It has been termed morphia. Sertürner recommends that morphia be obtained from powdered opium; eight ounces rubbed with two or three ounces of acetic acid, so as to form a paste, with the addition of a little water; then let two or three pints more of water be added; strain the liquor; put into it a solution of pure ammonia, and then evaporate to one-fourth. During the process of evaporation a brown matter is thrown down, which is morphia. For another method, see Pharmacy.

1321. Morphia is ranged by some modern authors among the native vegetable alkalis. It seems to exist in opium, combined with a peculiar acid called the meconic acid, and hence the utility of ammonia in the preparation of it. See Medicine.

1322. *Strychnia*, an alkaline principle lately discovered in the bean of St. Ignatius, and nux vomica, and which it is said exists in a very pure state in the poison from the upas-tree, is a crystalline substance, white, of an intensely bitter flavor, and one of the most virulent poisons that have yet been discovered.

1323. *Brucia* or *brucine*.—This term has been applied to a principle lately obtained from the Angustura bark. It is also a crystalline substance, with a bitter but less acrid taste than morphia.

1324. *Delphia* or *delphine* is procurable from the seeds of the stavesacre (delphinium staphysagria). This is also a crystalline and alkaline principle, with a bitter and acrid taste. See *Ann. de Chim.* xii.

1325. To an acrid narcotic principle residing in the menispermum cocculus, the name of picrotoxia has been given, which is also crystalline, and exceedingly bitter.

1326. *Atropia*.—It was found in analysing the leaves of the belladonna that they yielded a narcotic principle, somewhat like morphia in its properties. This, like the other alkaline principles, from vegetables, forms salts with acids; but it has been observed that atropia demands an excess of acid for this combination, so that its title to an alkali is somewhat equivocal.

1327. Atropia is an exceedingly powerful principle, producing even in its vapor giddiness and dilatation of the pupils of the eyes.

1328. The seeds of the veratrum sabatilla, the root of the veratrum album, and colchicum autumnale, yield a principle called veratria, which is exceedingly acrid without bitterness, and very powerful in its influence upon the animal system. From hyoscyamus, and digitalis, two concentrated and active principles have lately been extracted.

1329. The cinchona bark gives cinchona and quinia, or quinin, and Robiquet has very recently described a peculiar principle from coffee, which he names caféa. These substances and principles will be enlarged on in other parts of our work. See Materia Medica, Pharmacy, and Medicine.

Fixed Oils. (*Vegetable*).

1330. Oils abound much in nature, and are of very extensive use in domestic economy, and in arts and manufactures. They were known at a very early period, are mentioned in the book of Genesis, and in Abraham's time were used even in lamps. Cecrops is said first to have introduced the cultivation of the olive into Attica, and to have made the Europeans acquainted with the use of oil. Homer's heroes used burning sticks instead of lamps.

1331. Oils are distinguished into the fixed or fat, and the volatile or essential oils. The fixed oils require a higher temperature than that of boiling water to raise them in vapor. The volatile oils rise in vapor at a lower temperature than that of boiling water.

1332. Fixed oils are highly inflammable; are liquid, or become so by a gentle heat; their boiling point not under 600°; have a mild taste; a greasy feel, and leave a stain.

1333. They are also called expressed oils, because they are obtained by compression from a great variety of vegetable, and some animal substances. These oils are found chiefly in the seeds of vegetables; and Fourcroy remarks they are found only in the seeds of the bicotyledinous class of plants. The seeds of plants from which they are chiefly extracted are the fruit of the olive, the kernels of almonds, and of a great variety of stone fruits; from linseed, rape-seed, hemp-seed, poppy-seed, and a variety of other seeds, from which they are extracted by powerful mechanical compression. Fixed oils may also be extracted from beech-mast, and various seeds of trees. Fixed oils are also obtained from animals, but these we are afterwards to notice.

1334. The fixed oils are very numerous, and they have all some shades of difference from each other. Although we are not sufficiently acquainted with their nature to decide positively, it seems extremely probable that the oil is the same in all, and that their differences are occasioned by extraneous matters in the composition of each species.

1335. All the fixed oils are insoluble in water. They are also lighter, and hence always float on the surface of that liquid. They are never perfectly limpid, but always possess some degree of color. Nor are they perfectly fluid but possess a degree of tenacity, and adhere to the sides of the vessel in which they are contained. They all require a higher temperature than water to make them boil, and the boiling point often varies in different specimens of the same oil.

1336. When distilled, these oils are partially decomposed; some acetic acid and water are formed, and a little charcoal remains in the retort, while much carbureted hydrogen gas is evolved. The oil becomes lighter, more fluid, and has a stronger taste than before. Distilled oil was formerly dignified by the name of philosophical oil.

1337. When kindled in a state of vapor, fixed oil burns with a yellowish-white flame. The use of a wick for a candle or lamp, is to present a sufficiently small quantity, and in regular succession, of the oil to the action of heat, that it may be converted into vapor; and the flame forms a cone, the interior of which is filled with this vapor, which only takes fire where it comes in contact with the oxygen gas of the atmosphere. If the whole oil be raised to 600°, it takes fire spontaneously. When sufficiently cooled, the fixed oils are converted into ice; but the freezing point is various in different oils.

1338. The linseed, nut, poppy, and hemp-seed oils, are the principal drying oils commonly used, and they are employed in the preparation of paints and varnishes. To qualify them for these purposes, they are always boiled some time in an iron pot, during which process they are partially decomposed, and much watery vapor, and carbureted hydrogen gas is emitted from them. Their color becomes deeper, and their consistency greater. During the boiling a little litharge is commonly mixed with them. For certain purposes they are set on fire during the boiling, and, after burning some time, they are extinguished by placing a lid over the pot; after which the boiling is continued until they acquire the proper viscidity. By these means these oils lose their unctuosity, and approach the nature of resins. But they do not become brittle, for they still retain a considerable degree of toughness and ductility. Burning them some time is the most effectual method for destroying their unctuosity.

1339. Nut oil is found to be the best for printers' ink, and next to it linseed oil. The oil is put into a pot only half full, burnt for about half an hour or more, and boiled to the proper consistency. It is then called varnish; and two kinds, a thicker and a thinner, are prepared; the latter to be mixed with the former, should its consistency be found too great. The varnish improves by keeping after it is prepared. It is ground with two ounces and a half of lamp black to every sixteen ounces of oil. Sometimes the black is extended with Spanish whitening, and sometimes receives a small admixture of Spanish or of Prussian blue. That the oil has undergone some change by the boiling and burning, appears from printers' ink adhering to wet paper. But it is still very different from a mucilage, because it does not combine with water, nor does it spread or stain the contiguous paper.

1340. The fat oils, such as the oil of olives, of sweet almonds, of rape-seed, of ben, &c. by long exposure to the air, become white, thick, and opaque, so as to resemble tallow. This happens much sooner when they are poured upon water, so as to form a thin coating upon its surface. This does not happen when they are excluded from contact with oxygen gas; and hence it must be owing to the action, or more probably, the absorption of this gas.

1341. The fixed oils, when assisted by heat, readily dissolve sulphur, forming a reddish colored solution, which yields much sulphureted hydrogen gas by distillation. The solution deposits the sulphur in octahedral crystals by slow cooling. When boiled in water, along with phosphorus, these oils also dissolve a small proportion of the latter. The solution yields phosphureted hydrogen gas by distillation, and appears luminous when spread on the surface of bodies.

1342. When the fixed oils are agitated in water, the mixture becomes milky, but the oily particles soon separate and rise to the surface. If gum-arabic, or any mucilage, be present, the oil does not separate, and the mixture becomes permanently milky. Such preparations are called emulsions, and they are commonly prepared by grinding oily seeds, such as those of almonds, in water, which contain both an oil and a mucilage to keep its particles separate.

1343. The fixed oils dissolve the white oxide of arsenic; and when boiled with the oxides of mercury, lead, or bismuth, they form the tough compounds called plasters, which are used as an artificial skin to exclude the air from wounds.

1344. Phosphoric acid deepens the color of these oils, and sulphuric acid first renders them black, afterwards converts them into bitumen, and at last decomposes them entirely, if its action be continued a sufficient length of time. The result is the formation of water, while charcoal is precipitated, and an acid evolved. But the action of this acid on these oils has not been sufficiently examined.

1345. The ultimate components of olive oil, as given by Gay Lussac, and Thenard, are :—

77·21	carbon.
9·43	oxygen.
13·36	hydrogen.
100·00	

1346. The volatile oils are so called from their volatility, as they always rise in vapor at a lower temperature than 212°, or the boiling point of water. They are also called essential oils, as they were supposed to contain the concentrated substance of the plant from which they were obtained. They are called aromatic oils, from the fragrant smell which they exhale.

1347. Beside these properties, they are very combustible, nearly as liquid as water, though sometimes viscid; have an acrid taste; are soluble in alcohol, and imperfectly in water; after evaporation they leave no stain on paper. This last property enables us to judge whether they have been adulterated by a mixture of the fixed oils, for if a drop evaporates from paper without leaving a stain, they are pure, if not, they are adulterated.

1348. The volatile oils are almost all obtained from vegetables, though some few, such as oil of musk and others, are obtained from animals. They are obtained from all parts of plants, the root, the bark, the wood, the pith, the leaves, flowers, fruits, and seeds. But they are never found in those seeds which yield fixed oils.

1349. They may often be obtained by simple expression, which is the case with oil of lemons, oranges, and bergamotte. But in general they are obtained by distilling the plants containing them, mixed with water, with a moderate heat. The oil comes over along with the water, and floats upon its surface. In this way the oil of lavender, peppermint, thyme, and various others, which are employed by the perfumer, are obtained. Oil of turpentine is obtained by distilling the juice called turpentine, which exudes from the juniper tree.

1350. Some of these oils are as limpid as water, and have no oily appearance, as oil of turpentine, oranges, lemons, bergamotte, roses. Some have a degree of viscidity, as oil of mace, cardamum, sassafras, cloves, cinnamon. Others gradually lose their fluidity and become solid, as oil of parsley, fennel, aniseed, balm. Others, when slowly evaporated, crystallise, as oil of thyme, peppermint, marjoram. Others soon acquire the consistence of butter, as the oil of nutmegs, hops and pepper. They are also of almost every color; and some which are limpid at first, become brown by age. Their odors are also so various, as to defy all description. In fact all the fragrance of the vegetable kingdom is contained in the essential oils; and, when these are extracted, plants have no smell whatever. A description of their odors would therefore be a description of the peculiar smell of each odoriferous plant. The specific gravity of these oils is also considerably various, and it varies in the same oil at different periods of its age.

1351. The volatile oils evaporate readily when heated in the open air, and diffuse their peculiar odor; but they do not evaporate so readily in close vessels, unless water be present. Without this, they are apt to be decomposed, they lose their odor, and become darker in the color. When exposed to cold, they freeze at different temperatures, according to the oil. Some at 17° are partially crystallised, and converted into other substances, one of which resembles benzoic acid.

1352. When exposed to light in close vessels, their color becomes deeper, their consistency and specific gravity are increased, as well as their absolute weight. Tingry thinks these effects are produced by the fixation of light. But as the degree of effect is always proportional to the quantity of oil, and of air included in the vessel, it is more probably owing to the absorption of oxygen.

1353. Dr. Priestley ascertained that these oils, by exposure to the air, absorb oxygen, and also absorb it from the air in close vessels in which they are kept. He ascertained that oil of turpentine imbibes a considerable quantity of air, which can be extricated from it by means of the air-pump. By long exposure to air, the volatile oils lose their smell, become thick, and assume the appearance of resins.

1354. Many of these oils, when dropped upon sugar, which is afterwards dissolved in water, convey to the water their peculiar taste and smell. This solution is known by the name of oleo-saccharum. They dissolve in alcohol, ether and the fixed oils. Oil of turpentine dissolves slowly in alcohol, and afterwards separates from it.

1355. When digested upon sulphur, at its melting temperature, they dissolve a portion of it, acquire a brown color, with a disagreeable smell and taste. These solutions used to be called balsams of sulphur, and a portion of the sulphur crystallises on slow cooling. When strongly heated, these balsams emit such quantities of gas, as to occasion dangerous explosions; and they should be managed with much caution.

1356. With the assistance of heat, these oils dissolve a portion of phosphorus, though most of them part with it again on cooling. But if ten parts of camphor be rubbed and mixed with one part of phosphorus, this mixture enters into permanent union with the essential oils, particularly the oil of cloves, and the solution possesses the property of being luminous without taking fire. When the face or hands are rubbed, or letters written with it, they appear luminous in the dark. This is what Boyle used under the name of liquid phosphorus.

1357. The essential oils scarcely combine with alkalis. The medicinal preparation, called Starkey's soap, is made by triturating oil of turpentine with potassa, and the operation is so tedious and laborious, that there is reason to believe the oil is converted into resin, by absorbing oxygen from the atmosphere before it combines with the alkali. With resin the alkalis combine very readily.

1358. The sulphuric acid first dissolves these oils, then converts them into resin, and lastly into charcoal. They may be separated from the acid in any of these states by pouring in water. An acid soap may be formed by slowly dropping, and repeatedly stirring, oil of turpentine in sulphuric acid. The soap separates from the mass; is of the consistence of soft wax; and soluble in water and alcohol. When this soap is decomposed by an alkali, the oil is found to have been converted into a resin, and afterwards unites with alkalis.

1359. When concentrated nitric acid is poured suddenly upon any of the essential oils, it sets them on fire; but if the acid be diluted with water, it dissolves them, and converts them into resins, of a yellow color. Chlorine acts in the same way.

1360. When these oils are burnt in the open air, they emit a clear bright flame, with much smoke. The smoke, being collected, is found to consist of carbonic acid, water, and charcoal. From these facts, combined with the effects of acid supporters upon them, it is inferred that the volatile oils are composed of hydrogen and carbon, with various proportions of oxygen; though no exact analysis of them has yet been attempted.

1361. The volatile oils are much used in medicine, in painting, and perfumery. Oil of turpentine is much used to dissolve resins, and the solutions are applied as varnishes to various bodies. The oil of turpentine used in this way readily evaporates, leaving the resin in contact with the body to which it is applied; or the oil is oxygenated and becomes a resin itself; but the varnish does not become brittle like the original resin.

1362. There is another class of oils which has been distinguished by the name of empyreumatic oils, which agree in some particulars with the volatile oils. They are formed when the other oils are distilled with a higher degree of heat than the boiling point of water, or by the application of high degrees of heat to moist animal and vegetable substances, which are not known to contain any oil. They are supposed to be the other oils changed, and partially decomposed by heat. They have a strongly fetid and disagreeable smell, and an acrid and harsh taste. They combine, in small proportion, with water, and are soluble in alcohol. It is from these oils that spirits and other distilled liquids, derive what is called an empyreumatic flavor, which happens either when the still is too large, and contains such an incumbent mass of liquid that the steam is compressed, and cannot freely rise from its bottom; or when the neck and worm are too narrow to discharge the steam as fast as it is generated. In such cases the heat accumulates considerably higher than the vaporific point, before it can be carried off by the steam; the still is said to be burnt, its bottom often giving way; and the spirits are impregnated with empyreumatic oil, formed by the accumulation of heat in the still.

BITUMENS.

1363. This name was formerly applied to all mineral inflammables, but is now restricted to substances which have a striking resemblance to vegetable oils and resins. Indeed there are strong reasons for believing that, if not all, at least this class of mineral inflammables, was originally derived from vegetables and animals: and, on this principle, may, with propriety, be introduced into this part of our treatise.

1364. This class of bodies is subdivided into mineral oils, and bitumens properly so called. The mineral oils bear a most striking resemblance to volatile oils which we have just been discussing, and ought to be classed with them. The bitumens are a more numerous class of bodies, and they seem to bear the same relation to the mineral oils, that resins bear to the volatile oils.

1365. The only mineral oil whose properties have been examined, is usually called petroleum, or rock oil, and sometimes coal oil, as it is obtained from fossil coal. It is very volatile, and distills without alteration; is usually of a yellowish-brown color, though we have seen it rectified so as to be as limpid and fluid as water. It has a very acrid taste; and a disagreeable smell. Its specific gravity varies from 0·730 to 0·878. It combines with alcohol, ether, the volatile and fixed oils, and possesses all the properties of a volatile oil.

1366. In its purest form petroleum is usually called naphtha, in which state it issues in great abundance from many fissures in the mineral strata, along the shores of the Caspian, and in Persia. It also occurs in Germany, Italy, and various parts of Europe. It is often seen to form a white scum on the surface of water which issues from springs in this country, and sometimes to ooze from fissures of rocks, where it may be collected in small quantities. In this state it is limped and colorless, but becomes darker by exposure to the air.

1367. Petroleum, and bitumen, were first extracted from coal in this country, by lord Dundonald, by distillation from kilns constructed for the purpose. The product of the first distillation is a thin dark colored liquid, consisting of petroleum combined with coal tar. By exposure to the air, part of the petroleum evaporates, the liquid thickens, becomes blacker, and acquires the consistence of tar, and even becomes solid if exposed a sufficient length of time. It would seem that oxygen is absorbed as well as volatile oil evaporated. But to inspissate his tar, lord Dundonald subjected it to a second distillation, by which he seems to have expelled too much of the volatile oil, as his tar was rendered brittle like resin, and was apt to crack and fall off from the sides of ships on which it was laid. Perhaps it would have been better to have combined some fixed oil, or wood tar, with his inspissated tar; or to have brought the tar of the first distillation to the proper consistence by combining it with resin.

1368. In the sixth volume of the Asiatic Researches, 1·127, we have a very accurate description, by Captain Hiram Cox, of a species of mineral oil, every way similar to the product of lord Dundonald's first distillation, which flows from numerous springs near Amarapoorah, the capital of the Burmhan empire in India. They dig numerous pits for this oil, to the depth of about 200 feet, and it yields a considerable income to the proprietors, as well as revenue to the government. It oozes from strata of coal, and of dark bitumated clay, commonly called blaës in this country by the colliers. This oil is nearly as liquid as water when taken out, but by exposure to the air and to cold it becomes of a darker color, and thicker consistency. It is combined with resin produced in this country, and used for the timbers of houses, and the bottoms of boats, which it defends from rotting, and from the attacks of insects. It is also burnt in lamps, and rubbed on the skin to cure cutaneous eruptions, bruises, and rheumatisms. The opodeldoc, so much extolled in this country for curing sprains, seems to be nothing else but purified coal-oil.

1369. The bitumens, properly so called, are a more numerous class of bodies than the mineral oils. In general they seem to consist of a resinous substance combined with a greater or smaller proportion of mineral oil. When they first issue from the earth, they are generally of the consistence of thin tar, but they become thick, and often consolidate, by exposure to the air.

1370. They are of various colors, but generally brown or black. Their smell is distinguished by the name of the bituminous smell, and when they are heated, or rubbed, somewhat resembles that of swine. They become electric by friction; when heated they melt, and burn with a bright flame, and much smoke. They are all insoluble in water, and most of them in alcohol; but they are all soluble in ether, and in the fixed and volatile oils. They do not combine with alkalis, nor form soaps. The acids have little action on them; but the nitric acid dissolves and acts upon them nearly in the same way as it does on resins.

1371. To this class we would refer the sea-wax, or maltha, found on the lake Baikal in Siberia, which is white, and of the consistence of white cerate, as Klaproth obtained a similar substance by distilling wood-coal in Germany. Perhaps, also, the mineral tallow, described by Kirwan, and said to be found on the coast of Finland and other parts of Sweden, may be referred to this class. Perhaps a white light substance, called moss-tallow, which is found in the bottoms of peat bogs near Inverness and other parts of Scotland, may also be a mineral bitumen; though we entertain some suspicion it may have been the tallow of cattle which had been killed by huntsmen, and dropped there when these bogs were woods, before the moss grew up. Though this substance has not been particularly examined, we may remark that it differed from tallow in several respects, though it resembles it in some others, particularly in its melting and inflaming.

1372. By far the most abundant species of mineral bitumen, is distinguished by the name of asphaltum or mineral tar; and it is every way similar to the coal tar of lord Dundonald. Of this there is a considerable lake in the island of Trinidad, which is so much hardened on the surface by exposure to the air that people can walk upon it, though it is liquid below, and still more fluid when it issues from the mineral strata. This lake is supposed to have been the crater of a volcano, which has been filled up by bitumen flowing from contiguous strata of coal. It abounds in Albania, and is supposed to have been the substance chiefly employed in preparing the Greek fire. It abounds also on the shores of the Dead Sea, in Palestine; and was used in place of mortar, for building the tower and walls of Babylon. The Egyptians employed it in embalming. It is said to abound in Persia, and several parts of Asia. Considerable quantities of this substance often issue from the strata of stone quarries in the county of Caithness. At first it is nearly as fluid as water, but, by exposure to the air, it acquires a darker color, and the consistence of tar. By long exposure, it even becomes hard, and as black as jet.

1373. The color of this bitumen is at first dark brown, and it always becomes blacker the longer it is exposed to the air. Its specific gravity varies from 1·07, to 1·165, according to Kirwan.

1374. Klaproth ascertained that the asphaltum of Albania is not soluble in alkalis, acids, water, or alcohol; but it is soluble in petroleum and all the oils, and in sulphuric ether. Five parts of petroleum dissolved one part of asphaltum, and, being gently evaporated, left a black brown shining varnish. The solution in ether was of a pale brown red color, and being evaporated, a reddish semitransparent fluid substance was left, still insoluble in alcohol.

1375. A hundred grains of this asphaltum being distilled by a heat gradually raised to redness, yielded

	Grains.
36 cubic inches (German) carbureted hydrogen gas	16
A light brown fluid oil, or petroleum	32
Water tainted with ammonia	6
Charcoal	30
Ashes	16
	100

The ashes consisted chiefly of silica and alumina, with some lime, iron, and manganese.

1376. As petroleum combined chiefly with a certain proportion of charcoal, forms bitumen, so bitumen, into whose composition a larger proportion of charcoal enters, forms mineral coal. Of this there are several varieties, but they may be classed under the general names of brown coal, and black coal. The brown coal has not been found in this country, but it abounds in some parts of Germany, and it contains some of the vegetable principles unchanged. The black coal abounds in Britain, and it may be regarded as the source of her wealth and prosperity. It is of two kinds. The flaming coal, which contains a considerable portion of bitumen in its composition,—and what is usually called blind coal, because it burns without flame, and has lately been called glance coal by Werner. This is found at Kilkenny in Ireland, in some parts of Ayrshire, in the island of Arran, on the banks of the grand canal at Annfield, and different parts of Fifeshire, and in some districts of England. This last is charcoal, without bitumen, and hence it does not flame; the flame of coal, like that of oil (1337) being owing to the combustion of bitumen after it is raised in vapor. Besides bitumen and charcoal, all these sorts of coal contain a greater or smaller admixture of extraneous earths, and sometimes of iron, sulphur and other substances.

1377. When the flaming coal is distilled in lord Dundonald's method, it gives out a vast quantity of heavy inflammable air, or carbureted hydrogen gas; a bituminous oil, at first fluid, but gradually changes to the consistence of tar; and water impregnated with ammonia. Lord Dundonald has applied the oil to the making of varnishes. The residue is coak, or mineral charcoal, which yields a strong and steady heat, and is of great use in various manufactures.

1378. Mineral caoutchouc is another species of bitumen, only found in Derbyshire. It is so called from its resemblance to vegetable caoutchouc, or Indian rubber. It effaces pencil marks from paper, but stains it a little. It is elastic, of a dark brown, and sometimes of a red color. It resists all liquid menstrua, but dissolves in olive oil, according to Delametherie. Klaproth found it dissolved in petroleum, the solution being of a bright yellow color, and transparent. It burns with a bright flame, and melts by heat, retaining its tenacity after melting, which is not the case with Indian rubber. After being melted it dissolves in oils.

1379. There is another bituminous substance connected with the Bovey coal in Devonshire, to which Mr. Hatchett assigned the name of resin-asphaltum, and whose chemical properties he examined.—It is of a pale ochre yellow color; brittle, and fracture vitreous; specific gravity 1·135 It burns with a bright flame, and emits a fragrant odor, at last tainted with a bituminous smell. It melts, and after cooling, is black, brittle, and fracture vitreous. Water does not act upon it; but a portion dissolves in alcohol, potassa, and nitric acid; what dissolves having the properties of a resin, and the insoluble part of an asphaltum. Mr. Hatchett found it composed of

Resin	55
Asphaltum	41
Earths	3
	99

WAX.

1380. It is well known that bees possess the power of forming wax, which Huber ascertained they can do from honey or sugar. But this substance is also a vegetable product, and some plants yield it in such abundance that it might be profitably extracted from them. It coats the surface of the leaves of many trees, and the leaves being bruised, and digested, first in water then in alcohol, until all that is soluble in these liquids be extracted from them, the insoluble part is mixed with six times its weight of pure ammoniacal solution, which dissolves the wax. The solution being filtered, the ammonia is saturated with diluted sulphuric acid, with constant stirring, which precipitates the wax in yellow powder. After being well washed, it is melted over a gentle fire.

1381. Wax is bleached, and acquires a pure white color, by exposing it in thin slices to the atmosphere. It has then hardly any smell, and its specific gravity is from 0·8203 to 0·9662. It is insoluble in water; melts at 155°. At a greater heat it boils and flies off in vapor. An ignited body sets the vapor on fire, and this property renders wax very useful for making candles. Wax is soluble in boiling alcohol, and in heated ether. With the fixed oils it forms the compound called cerate, much used by surgeons, and whose consistency varies according to the proportion of oil. It also dissolves in heated oil of turpentine, and other volatile oils, and a part precipitates on cooling. With the fixed alkalis it forms soap, and with volatile alkali a soapy emulsion, scarcely soluble in water. The acids have little action on wax, and chlorine only bleaches, or renders it white. Hence wax is much employed as a lute to confine acids in vessels. From an experiment of Lavoisier it would appear that wax is composed of

82·28	parts carbon
17·72	hydrogen
100·00	

It probably contains also a portion of oxygen. As the absorption of oxygen renders the fixed oils concrete, wax is supposed to be a fixed oil which has become concrete by being saturated with oxygen.

1382. In Louisiana, and other parts of North America, a pale green wax is obtained from the berries of the myrica cerifera, which are boiled and squeezed in water. The wax is melted, and swims on the surface, where it is skimmed off. The Chinese extract wax from various vegetables; and it is now thought to be a very abundant product of the vegetable kingdom.

CAMPHOR.

1383. Neumann first demonstrated this to be a distinct vegetable substance. It has long been known in the East, and was first brought to Europe by the Arabians. It is obtained in Japan by distilling the wood of the laurus camphora, in large iron pots, along with water. To the pots are fitted earthen heads stuffed with straw. The camphor sublimes, and concretes upon the straw. The Dutch subject it to a second sublimation in glass vessels of a turnip shape, having a small mouth covered with paper. When sublimed in close vessels it crystallises in hexagonal plates, or pyramids.

1384. Refined camphor is a white brittle substance, of an acrid taste, and aromatic odor. Its specific gravity is 0·9887. It is so volatile that when exposed in open vessels in hot weather, it goes entirely off in vapor. It is insoluble in water, but communicates to it its peculiar smell. Rectified alcohol dissolves three-fourths of its weight of camphor, which is precipitated by adding water. When camphorated alcohol is distilled, the spirit passes over first, leaving the camphor; and this affords an easy way of purifying camphor. Camphor is also soluble in the fixed and volatile oils. Acids dissolve camphor with effervescence, and it may be precipitated from the recent solution unaltered. Mr. Hatchett, by digesting sulphuric acid on camphor, and afterwards distilling the compound, converted it into a yellow oil, charcoal, and a resinous substance resembling artificial tannin. Nitric acid converts camphor into a yellow substance resembling oil, which is called oil of camphor. With acetic acid it forms the compound called aromatic vinegar.

1385. When suddenly heated, camphor melts at 300°, according to Venturi, and at 421° according to Romini. It is very inflammable, and burns with much flame, without leaving a residuum. It even burns on the surface of water. Bouillon la Grange thinks camphor is composed of volatile oil and charcoal, and that its ultimate ingredients are carbon and hydrogen, the proportion of carbon being much greater than in oils.

1386. Camphor has been found to exist in all the volatile oils that have been examined, and is supposed to communicate to them their peculiar smell. If a volatile oil be exposed to the air at a temperature between 22° and 54°, part of the oil evaporates, and camphor crystallises. Or if the oil be distilled in a water-bath some degrees below the boiling point, until a third of the oil is forced over, camphor is found crystallised in the still. If this be removed, and the oil again distilled, more camphor crystallises; and in this way all the camphor may be separated from the oil. The camphor thus obtained is purified by mixing it with a little dry lime and subliming it. This differs from common camphor in not forming a liquid solution with the sulphuric and the nitrid acids; and it is precipitated from the latter acid in a glutinous mass.

1387. Mr. Kind, of Eutin, having passed a stream of muriatic acid gas through oil of turpentine, in a Woulfe's bottle, converted nearly one-half of the oil into camphor. The proportion of gas which answers best is what can be separated by sulphuric acid and heat from a quantity of common salt equal in weight to the oil of turpentine employed.

1388. Camphor is much used in medicine. It proves destructive to many species of insects, and the gall-plant, which contains camphor, is commonly called flea-bane in this country, from the use to which it is sometimes applied.

BIRD-LIME.

1389. This viscous substance exudes from the bark and leaves of several plants. It is said to abound in the berries of the misletoe. It is usually prepared by boiling the middle bark of the holly, seven or eight hours, until it becomes soft. It is then put into a hole in the earth, covered with stones, and left to ferment or rot for a fortnight or three weeks. This fermentation changes it to a mucilaginous consistency; and it is now pounded to a paste in mortars, and well washed with river water. It is soluble in ether, and in boiling alcohol. Its color is greenish, its flavor sour, its consistence gluey, stringy, and tenacious. It has hence been much employed in catching small birds. It reddens vegetable blues. It softens, but does not dissolve in boiling water. Concentrated solution of potassa forms a species of soap with bird-lime.

RESINS.

1390. Resins derive their name from common rosin, which is the most abundant of any of this class of substances. Resins are supposed to have the same relation to the volatile which wax has to the fixed oils, and to be formed in consequence of a combination of oxygen with volatile oils. Accordingly when a volatile oil is long exposed to the air it acquires the properties of a resin, in consequence, it is thought, of its combining with oxygen. The same change takes place more rapidly when oil of turpentine is exposed to chlorine. It is soon converted into a yellow resin. Resins often exude spontaneously from trees, or flow from artificial wounds. They are frequently at first combined with a volatile oil from which they are separated by distillation. They are solid brittle substances, commonly of a yellow color. Their taste resembles that of volatile oils, but they have no smell unless they contain foreign ingredients. They are all heavier than water. They are all non-conductors of electricity, and by friction are electrified negatively.

1391. When heated they melt, and when ignited they burn with a yellow flame, emitting at the same time much smoke. They are insoluble both in hot and in cold water, but when they are melted in water, or combined with volatile oil and distilled with water, they become opaque and less brittle than formerly. This every shoemaker knows who prepares his rosin by working it in warm water.

1392. They are, with only two exceptions, soluble in alcohol, especially when it is heated, which takes up about one-third of its weight of resin. If the alcohol be distilled off, the resin remains unchanged. Or if water be poured into the solution, the resin falls in the state of a white powder. They are also soluble in sulphuric ether. Most of them are soluble in the fixed oils, and especially in the drying oils. They are also generally soluble in oil of turpentine and other volatile oils. They are soluble in the fixed alkaline solutions, and hence the soap manufacturers put a quantity of rosin in their soap, which gives it a yellow color, a peculiar smell, and renders it more soluble in water. In volatile alkali they only form an imperfect solution.

1393. Mr. Hatchett first discovered that resins are soluble in acids. Sulphuric acid being poured on them in powder, first dissolves the resins, and, by the assistance of heat, gradually converts them into artificial tannin and charcoal, which burns like mineral coal. The compound being washed, and the tannin separated by alcohol and water, from 100 grains of the following resins, Mr. Hatchett obtained the following proportions of charcoal by this process:

Copal . . .	67 grains
Mastich . .	66
Elemi . . .	63
Tacamahac .	62
Amber . . .	56
Resin . . .	43

The same bodies when exposed to a red heat in close vessels yield very little charcoal. The following is the quantity obtained by Mr. Hatchett from 100 grains of several of them:

Mastich . .	4·50 grains
Amber . .	3·50
Resin . . .	0·65

1394. Nitric acid of the specific gravity 1·38, dissolves resin with the assistance of heat, and changes its nature. It is precipitated by water. If the acid be in sufficient quantity, and be long digested on a resin, a yellow viscid substance is obtained which is equally soluble in water and alcohol. At last the nitric acid converts resin into artificial tannin. Muriatic acid also dissolves resins slowly. Mr. Hatchett recommends acetic acid as an excellent solvent of resins for vegetable analysis.

1395. By destructive distillation resins yield carbureted hydrogen gas, carbonic acid gas, some acidulous water, and much empyreumatic oil. When volatile oil is exposed to the air it is partly converted into resin, partly into the benzoic or camphoric acids, while a portion of water is also formed. It has hence been inferred that resin consists of volatile oil, combined with oxygen, and deprived of a portion of its hydrogen. To know if any substance contains resin, pour sulphuric ether upon it in powder, and expose it to the light. If resin be present, the ether will assume a brown color. We shall now enumerate a few of the more useful resins.

1396. *Rosin* is obtained from the pinus sylvestris, or Scotch fir, from the pinus abies, or spruce fir, from the larix, and balsamea. When the bark is stripped from the fir trees in winter, they become encrusted with a white brittle substance, consisting of rosin united to a small portion of oil. The yellow rosin is made by melting and agitating this substance in water, and it is more ductile than the others because it contains a small portion of oil. The larix yields Venice turpentine, the balsamea the balsam of Canada.

1397. *Mastich* is obtained from the pistacea lentiscus, a tree which grows in the Levant, and particularly in the island of Chios. Transverse incisions are made in the tree, from which a juice exudes, which concretes into this resin. It contains nearly a fifth of caoutchouc, from which the resin may be separated by solution in alcohol. It is chewed in Turkey, as we chew tobacco, and is often employed by surgeons to fill up the vacuities of carious teeth.

1398. *Sandarach* is obtained from the juniperus communis, or common juniper. It exudes spontaneously, and is soluble in about eight times its weight of water, but is not soluble in tallow or oil. It is also soluble in acids and alkalis.

1399. *Elemi* is obtained from the amyris elemifera, a tree which grows in Canada, and Spanish America. Incisions being made in the bark, during dry weather, the resin exudes, and is allowed to harden in the sun. It has a strong and fragrant smell, which gradually diminishes.

1400. *Tacamahac* is obtained from the fagara octandra, a tree which grows in America. It has an aromatic smell, and is soluble in alcohol, but not in water.

1401. *Animé* is obtained from the hymenæa courbaril, or locust tree, which grows in North America. It very much resembles copal, but is easily soluble in alcohol, which copal is not. It is much employed in making varnishes, owing to its solubility in alcohol.

1402. *Ladanum* or *labdanum* exudes from the cistus creticus, a shrub which grows in Syria and the Grecian islands. Water dissolves about one-twelfth of it, which seems to be gum. Part of the remainder is soluble in alcohol. It generally contains about one-fourth of its weight of extraneous matters.

1403. *Botany Bay resin* is obtained from the acarois resinifera, a singular sort of tree which grows near Botany Bay, and other parts of New South Wales. It exudes spontaneously, or from wounds made in the bark of the tree. Two-thirds of it are soluble, by digestion, in alcohol. The remaining third is extractive matter soluble in water, and woody fibre. It is partially soluble in alkaline solutions, and it burns like rosin.

1404. *Black poplar resin* was first pointed out by Schrœder, who obtained it from the buds of the black poplar, by boiling them in water, and afterwards pressing them. The buds yield about one-fourth of their weight of this resin, which is very similar to the resin of Botany Bay.

1405. *Green resin* constitutes the coloring matter of the leaves of trees, and of almost all plants. It is insoluble in water, but soluble in alcohol, by which it may be extracted from the leaves of plants. If the leaves be immersed in chlorine they soon assume a withered appearance, but the coloring matter acquires the properties of resin in greater perfection.

1406. *Copal* is said to be obtained from the rhus copallinum, a tree which abounds in several parts of North America. It is said also to be produced from various trees in Spanish America. It is a white substance, sometimes opaque, often nearly transparent. It has long been reckoned a gum, because it is of difficult solution in alcohol, oil of turpentine, and in the fixed oils. But it melts when heated, and, as Mr. Hatchett discovered, is soluble in acids and in alkalis. With nitric acid it forms artificial tannin, and exhibits all the usual properties of the resins. It is therefore now classed with the resins. If copal be suspended by a thread above the surface of alcohol, in a close vessel, well corked, and the alcohol raised in vapor by the heat of a sand-bath, the copal melts, and drops like oil into the alcohol, and is suddenly dissolved. After the drops cease to be dissolved by the alcohol, it is unnecessary to continue the process, because the alcohol is now saturated with the copal. By a similar process copal may be combined with oil of turpentine. Copal was first used as an ingredient in varnishes by the French. It afterwards found its way into Holland, where the mode of preparing it was much improved. But the modes by which it is prepared have hitherto been kept a secret among workmen, and are hardly known in the British Isles.

1407. *Lac.*—Though this substance has long been known in the arts, little is ascertained respecting its origin. It is said to be deposited on various species of trees in the East Indies, by an insect called chremes lacca. It seems to form the nests of these insects, and it appears doubtful whether it be formed in their bodies, or be merely an exudation occasioned by their punctures in the tree. In its original state it is called stick-lac, which is of a deep red color. When broken and boiled in water, the water dissolves a great part of this coloring matter, and the decoction is used as a red dye. What remains undissolved is called seed-lac, which is of a brown color. Alcohol dissolves the greatest part of what the water has left. What the water leaves melts by heat, and, being formed into thin plates, is known under the name of shell-lac.

1408. To Mr. Hatchett we are indebted for an accurate analysis of the three species of lac, and the following table exhibits his results in parts of a 100.

TABLE.

	Stick Lac.	Seed Lac.	Shell Lac.
Resin	68	88·5	90·9
Coloring matter	10	2·5	0·5
Wax	6	4·5	4·0
Gluten	5·5	2·0	2·8
Foreign bodies	6·5		
Loss	4 0	2·5	1·8
	100·0	100·0	100·0

1409. Lac is of very extensive use in India. In Europe, besides furnishing a red dye, it forms the basis of sealing-wax. Black wax is formed by melting certain proportions of shell lac with oil of turpentine, and stirring into the solution a sufficient quantity of ivory black. Red wax is formed in the same manner, with vermilion, to give the color. A portion of bleached bees-wax is often used to save the expense of lac. This substance also makes a conspicuous figure in the composition of varnishes. A solution of 100 grains of lac in four ounces of water, in which twenty grains of borax are also dissolved, and a sufficient quantity of lamp black is stirred in the mixture, constitutes Chinese ink.

1410. *Amber* is thought to be of vegetable origin, and, though it differs from resin in some particulars, it agrees with it in most of its properties. It is a light, hard and brittle substance, of a yellow color, and nearly transparent. Though usually tasteless, and without smell, it emits a fragrant odor when pounded or heated. It cannot be melted without losing weight, and changing its appearance. In a strong heat it burns, leaving a small quantity of ashes. It is not soluble in water, but dissolves after long digestion, in alcohol. A residuum is left, which is not acted on by alcohol. A boiling solution of the fixed alkalis converts amber into soap. It is also soluble in weak solution of potash, after very long digestion. Sulphuric acid converts it into a black resinous substance. Nitric acid, with heat, exhibits the same phenomena with it as with the other resins. It only combines with the fixed and volatile oils after being roasted, or melted by heat. In this case the solution forms amber varnish.

1411. *Resin from bitumen.*—Mr. Hatchett ascertained that when mineral bitumen, such as that which is distilled from pit-coal, is digested in nitric acid, it acquires the properties of a resin. Its fracture is then dark brown, and it acquires a resinous lustre.

VARNISHES.

1412. As resins form the basis of varnishes, it may not be improper to conclude this branch of the subject with a short account of those which are in most frequent use. The object of varnishes is to prevent the action of air and water on the varnished bodies. In most cases it is also desirable that they should be transparent, so as not to obscure the colors of the bodies to which they are applied. They should not crack nor scale off, and they should be susceptible of a fine polish. It is also necessary that the solvent of the resin used as a varnish, should be capable of drying. The solvents usually employed in making varnishes are alcohol, which forms what are called drying varnishes, volatile or essential oil, which forms what are called essential varnishes, and the drying fixed oils which form the fat varnishes. Frequently more than one solvent, and different resins, are mixed in the same varnish. Powdered glass is also recommended by Mr. Tingry, to give them more consistency. The mixture is commonly made in a glass matrass immersed in a vessel of boiling water, and is stirred with a stick until the combination be completed. The materials, when necessary, are previously liquified in separate bottles by exposing them to the steam of boiling water. After the combination is effected, the varnish is poured off, and filtered through cotton.

1413. Chaptal, in his Chemistry applied to the Arts, recommends, on the authority of Tingry, the following varnishes, which dry of themselves.

1414. A very brilliant varnish for pasteboard, boxes, pen-cases, &c.

	oz.
Pure mastic	6
Sandarach	3
Pulverised glass	4
Venice turpentine	3
Alcohol	32

1415. An equally brilliant and harder varnish for carriages, door and window frames, &c. is made by

	oz.
Copal, after it has been melted by a gentle heat, and poured into water	3
Sandarach	6
Pure mastic	3
Pulverised glass	4
Pure turpentine	2½
Alcohol	32

1416. An equally brilliant, but more pliable and solid varnish is obtained from

	oz.
Sandarach	6
Elemi	4
Anime	1
Camphor	½
Alcohol	32

1417. For wainscot, iron-work, grates, balustrades, &c.

	oz.
Sandarach	6
Shell-lac	2
Resin	4
Pure turpentine	4
Powdered glass	4
Alcohol	32

1418. For waxing tables and other furniture, melts over a slow fire,

	oz.
White wax	2
Add essence of turpentine previously liquified	4

continue to stir until the composition become cold. This mixture, being rubbed upon furniture, conveys all the brilliancy of the finest varnish.

1419. For violins, and instruments composed of rose wood, acajou, or plumb-tree, and particular kinds of furniture,

	oz.
Seed lac	2
Sandarach	4
Mastich	1
Benzoin	1
Turpentine	2
Alcohol	32

1420. Various coloring substances, such as gamboge, dragon's blood, turmeric, saffron, &c. may be mixed in the composition of varnishes, so as to convey any particular color to the bodies which they cover. The following composition forms a varnish of a beautiful golden orange color:—Twelve grains of oriental saffron, and three-fourths of an ounce of turmeric being infused during twenty-four hours in twenty ounces of alcohol, pour this infusion into a well pulverised mixture of

	oz.
Sandarach	2
Elemi	2
Dragon's blood in tears	1
Seed lac	1
Gamboge	¼

This varnish is used for covering mathematical instruments, utensils of copper, iron, and steel. When applied to metals they should be previously heated.

1421. A beautiful golden color may also be conveyed to vases, and utensils formed from the various compositions of copper, known by the name of brass, &c.

		oz.	grs.
Amber	triturated on porphyry	2	—
Gamboge		2	—
Seed lac		6	—
Dragon's blood		—	60
Extract of red sandal, dissolved in tincture of		—	24
Oriental saffron		—	36
Alcohol		36	—

1422. The above are the varnishes usually employed when alcohol is the principal solvent. From such varnishes the alcohol soon evaporates and leaves the varnish in a hard and brittle state, apt to crack and scale off, unless corrected by the other ingredients. In the composition of the essential varnishes, the volatile oil of turpentine is commonly used as the principal solvent of the resins. This oil, like alcohol, escapes in vapor; but part remains in union with the resins, and conveys to the varnish greater pliability, and renders the varnish less apt to crack and scale off, than those varnishes where alcohol is the principal solvent. It therefore follows that varnishes, where oil of turpentine is the principal solvent, are best adapted for pictures, leather, and such bodies as are exposed to be bent, folded, or dashed against hard substances.

1423. The following varnish is recommended for pictures:—

	oz.
Purified mastic	12
Pure turpentine	1½
White glass, pulverised	5
Camphor added in small fragments after the resins are dissolved	0½
Rectified oil of turpentine	36

1424. Another varnish for leather, wood, and metals, is composed of

	oz.	grs.
Seed lac	4	—
Sandarach	4	—
Dragon's blood	0½	—
Turmeric	3	36
Gamboge	3	36
Pure turpentine	2	—
Pulverised glass	5	—
Oil of turpentine	32	—

1425. *Copal varnish*, as Tingry discovered, may be formed by dissolving copal in ether, in the following manner:—Half an ounce of copal, in very fine powder, is gradually dropped into a flask containing two ounces of ether. The flask is then closed, and agitated for about half an hour, and then left to repose. When afterwards agitated, if the liquid exhibit a wavy surface, and appear muddy, more ether must be added, as the solution is imperfect. The ether dissolves from a fifth to a fourth of its weight of copal. The varnish thus formed is of a pale citron color. It is applied with a brush, and the substance on which it is spread should be covered with a slight coating of any volatile oil to prevent the too rapid evaporation of the ether. The oil may be afterwards wiped off by a linen cloth. This varnish forms such a hard coating on wood and metals, that it can hardly be defaced by either friction or blows.

1426. Copal varnish may also be prepared by solution in the essential, or volatile oils. When oil of turpentine is used as the solvent, it is previously necessary to expose the oil to the sun for some months in bottles closely stopped, having an empty space of some fingers' breadth between the oil and the cork. Eight ounces of this prepared oil are put into a matrass, immersed in boiling water, and afterwards one ounce and a half of powdered copal is gradually dropped into the matrass, during which the matrass is moved round among the water. After the solution is effected the matrass is removed from the bath, allowed to repose some days, and the liquid is filtered through cotton.—This varnish has nearly the same properties with that which was last described; but its success depends much on the state of the oil employed as the solvent.

1427. Other volatile oils are used as helps in the solution of copal for varnish. For example, two ounces of essential oil of lavender being heated in a matrass over a gentle fire, one ounce of powdered copal is added in small parcels, and the liquid stirred with a stick until the copal disappears. Six ounces of oil of turpentine, heated nearly to the boiling point, are then poured in at three different times, and the mixture is stirred incessantly until the combination be completed. This varnish is solid, and of a brilliant golden color, but less drying than the preceding.

1428. Another varnish is prepared by putting six ounces of oil of lavender into a matrass, with one dram of camphor, and heating them until they boil. Then two ounces of powdered copal are added, in very small portions, with constant stirring of the liquor. After the copal is well incorporated, a sufficient proportion of boiling oil of turpentine is gradually added, and the boiling and stirring are continued until the mixture has acquired the necessary consistency.

1429. *Fat varnishes* are chiefly employed to cover iron, copper, and utensils made of other metals. The oils chiefly employed as solvents are linseed rendered drying by the means which were described when treating of that oil and nut oil. A portion of oil of turpentine, or other essential oil, is commonly added to facilitate the drying. But the fat varnishes are so slow in drying, that the workmen are obliged to dry the articles covered with them, by the heat of stoves. A very good varnish is made by adding

8 ounces of boiling linseed oil to
16 — of copal melted in a matrass,
16 — of oil of turpentine.

The two first ingredients being well stirred, the matrass is removed from the fire, and shaken until the heat abates. Then the heated oil of turpentine is added, the whole well stirred, and while yet hot is passed through a linen cloth. This varnish should be kept in wide-mouthed bottles, and it improves by keeping.

1430. Another hard, durable, and beautiful varnish may be formed by digesting together

6 ounces of copal
24 — drying linseed oil
1½ — Venice turpentine
6 — oil of turpentine.

1431. Since balloons were invented many experiments have been made to procure a varnish sufficient to retain the gas. Caoutchouc is preferable to all known substances for this purpose; but as ether is the only solvent from which it parts with its properties unaltered, this solvent is too expensive for general use. The method commonly adopted is to liquify the caoutchouc cut into small slips, in a matrass over a sand-bath, and then to add boiling linseed oil, and after they are well stirred and incorporated, heated essential oil is added. Each of the three ingredients are in equal proportions. After the varnish cools it is passed through a linen cloth. Linseed oil and nut oil, when rendered very drying, acquire all the properties of varnish, and are often used to cover balloons without any addition. We shall resume this subject under the word VARNISH. See also AEROSTATION.

GUAIACUM

1432. Is obtained from the guaiacum officinale, a tree in the West Indies, whose wood is uncommonly hard and heavy. It exudes spontaneously, or billets being bored longitudinally, and heated at one end, the melted substance runs out at the other. It has long been used in medicine, particularly in rheumatic complaints. It is a solid substance resembling a resin, of a mixed brownish, reddish, or greenish color; and it becomes gray by exposure to light in the open air. When pounded or melted by heat it diffuses a fragrant odor. About nine per cent. of it are soluble in water, and the dissolved part possesses the properties of extractive. Alcohol dissolves guaiacum readily. Liquid chlorine precipitates the solution of a fine pale blue color, which is permanent, and renders it probable that guaiacum contains indigo in its composition. It is also soluble in sulphuric ether, and in the sulphuric and nitric acids. Mr. Brande obtained from 100 parts of this substance by distillation,

Acidulous water	5·5
Thick brown oil	24·5
Empyreumatic oil . . .	30·0
Charcoal	30·5
Carbonic acid and carbureted hydrogen gases .	9·5
	100·0

1433. This substance differs from the resins in containing a much greater proportion of forming oxalic acid when treated with but no tannin as is the case with the in the various changes of color it which seems a consequence of com- h various proportions of oxygen.

BALSAMS.

Balsams possess the general properties , but differ from them in yielding a portion of benzoic acid when heated or digested in Though insoluble in water they often benzoic acid when boiled in that liquid. rong acids dissolve them, and the alkalis pon them nearly as on the resins. Their is derived from the celebrated balm or am of Gilead. They are either liquid or d. The liquid balsams yet known are five in mber.

1435. *Opobalsamum, or balm of Gilead*, is obined from the amyris Gileadensis, a tree which grows in Arabia, especially near Mecca. It is so much esteemed by the Turks that little or none of it ever reaches this country. Of course its properties are not known in Europe, except from some vague reports.

1436. *Copaiva* is obtained from incisions made in the trunk of the copaifera officinalis, a tree which grows in South America, and in some of the West India Islands. It is of a yellowish color, transparent, at first resembles oil, but gradually acquires the consistence of honey. It has a pungent taste, and agreeable smell, and when mixed and distilled with water it yields from a half to three and three quarters of its weight of volatile oil. The residuum is resin. But when distilled from a water-bath, without being mixed with water, only a few drops of oil and very little water are obtained. This led Schonberg to conclude that the balsam is decomposed when it is distilled from an infusion in water, and that the oil and the resin are formed during the process. Distilled at the temperature of 550°, it yields oil, acidulous water, a small proportion of carbonic acid, and much olefiant gas. It is soluble in the sulphuric and nitric acids, both of which convert it into artificial tannin. It hence seems nearly allied to turpentine.

1437. *Balsam of tolu* is obtained from incisions made in the bark of the toluifera balsamum, a tree which grows in South America. It has a fragrant smell, is of reddish-brown color, and by age becomes solid and brittle. Distilled with water it yields very little volatile oil, but conveys to the water its taste and smell. If the distillation be long continued benzoic acid sublimes. Mr. Hatchett found it to be soluble in the alkalis, and that when dissolved in the smallest possible quantity of solution of potash, it lost its own smell, and assumed a most delicious odor, resembling that of clove pink. This smell be found to be permanent, and hence this preparation seems likely to answer as a perfume. Sulphuric acid, by digestion, converts about fifty-four per cent. of this substance into charcoal. A portion of artificial tannin is formed, and a considerable quantity of pure benzoic acid sublimes. Nitric acid acts upon it nearly in the same way as upon the resins. Benzoic acid sublimes, and by repeated digestions it is converted into artificial tannin.

1438. *Balsam of Peru* is obtained by boiling in water the twigs of the myroxylon Peruifera, a tree which grows in the warm parts of South America, and which abounds in resin. Its taste is hot and acrid, its smell agreeable, its color brown, and its consistence that of honey. Water, in which it has been boiled some time, deposits, on cooling, crystals of benzoic acid. Distilled from a sand-bath, with a heat gradually raised, some benzoic acid is first sublimed; next some water and oil come over. At 550° the balsam begins to boil, and much benzoic acid is sublimed, while a little water, much oil, and gas, come over until the temperature reaches 617°. The gas is chiefly carbonic acid mixed with a portion of olefiant gas. On increasing the heat a brownish oil comes over, and at last a black oil of the consistence of pitch, with a considerable quantity of gas, part of which is carbonic acid, but the greatest part seems to be olefiant. Sulphuric acid converts this acid into charcoal, the proportion of which amounts to no less than sixty-four per cent. of the original weight of the balsam. The residue is artificial tannin. The nitric acid evolves the prussic acid, and converts the balsam into artificial tannin. Both acids occasion, by digestion, a copious sublimation of benzoic acid.

1439. *Styrax* is obtained by boiling the bark of the liquidambar styraciflua, a tree which grows in Virginia and several parts of America. A similar tree, called rosa mallos by the natives, grows in the island of Cobross, in the Red Sea, where the bark is boiled in salt water to the consistence of bird-lime, and then put into casks. It is of a greenish color, an agreeable smell, and aromatic taste. It absorbs oxygen from the air and becomes harder. It is soluble in alcohol, and water extracts from it benzoic acid.

1440 The solid balsams are three in number, namely benzoin or benjamin, which is extracted from incisions made in the styrax benzoe, a tree which grows in Sumatra. It is a solid brittle substance, of a yellowish-white color; has little taste, but a very agreeable smell, which is increased by heat. It has long been used in medicine, and when treating of benzoic acid, &c., we pointed out the methods by which the acid is extracted from the balsam. It is not affected by cold water, but boiling water takes up a portion of the acid. Warm alcohol dissolves it, and it is readily soluble in ether. Sulphuric acid dissolves it, while benzoic acid sublimes. By continued digestion the balsam is converted into artificial tannin, and into charcoal, of which the quantity is forty-eight per cent. of the benzoin dissolved. Nitric acid acts with violence on benzoin, and, when assisted by heat, converts part of it into artificial tannin. It is soluble in acetic acid, and in a boiling lee of the fixed alkalis. Mr. Brande exposed 100 grains of benzoin in a retort to a heat gradually raised to redness. The products were

Benzoic acid	9·0
Acidulous water	5·5
Butyraceous and empyreumatic oil	60·0
Charcoal	22·0
Carbureted hydrogen and carbonic acid gases	3·5
	100·0

1441. Storax is obtained from the styrax officinalis, a tree which grows in the Levant, and some parts of Italy. It is brought to us in cakes, which are of a reddish-brown color, but soft to the touch. This is the most fragrant of all the balsams. It is soluble in alcohol; and, when distilled by Neumann, nearly the same products were obtained as from benzoin.

1442. Dragon's blood is said to be furnished by the calamus draco, the dracona draco, and the pterocarpus draco, trees which grow in the East Indies. There are two kinds of it, one in small oval drops, of a fine deep red, which become crimson when pounded. The other is in larger masses, some of which are pale, and some dark red. Alcohol dissolves the greatest part of it, forming a fine deep red solution, which stains marble, especially if it be heated. It also dissolves in oils, and conveys to them a deep red color. It melts by heat, inflames, and emits benzoic acid. When digested with lime a portion of it becomes soluble in water, and conveys to it a balsamic odor. Nitric acid detaches benzoic acid, and converts the residue into artificial tannin. Sulphuric acid also converts it into artificial tannin, and evolves charcoal, amounting to forty eight per cent. of the dragon's blood employed.

Caoutchouc.

1443. This substance being much employed in rubbing out pencil lines, and cleaning paper, is generally known in this country under the name of Indian rubber. It exudes, in the form of a milky juice, from punctures made in the havea caoutchouc, and the jatropha elastica, which grow in Brasil. It is also obtained from the ficus Indica, the artocarpus integrifolia, and the urceola elastica, in the East Indies. It may probably be obtained from several other trees. When the milky juice is exposed to the air, it gradually lets fall a concrete substance, which is caoutchouc. If chlorine be added to the juice, the deposition takes place immediately, and the chlorine loses its odor. If the milky juice be confined in a glass vessel with air, a skin of caoutchouc forms on its surface. This renders it probable that the formation of caoutchouc is effected by combination with oxygen.

1444. Caoutchouc is of a white color, without either taste or smell. The natives form it into bottles and other figures, by spreading the milky juice upon moulds of clay, and drying it in the smoke. This occasions the caoutchouc of commerce to be of a dark color, as it is composed of alternate layers of caoutchouc and smoke. This substance is soft and pliable like leather. It is remarkably elastic, and can be drawn out to a great length, and recover its former figure if the force is removed. Its adhesion is such that it cannot be broken without a very considerable force. Mr. Gough of Manchester observed that when stretched its temperature is raised, and if it be then plunged into cold water it loses much of its contractile power and does not return to its former dimensions unless it be plunged into warm water or warmed in the hand. This is considered as a fine illustration of Dr. Black's theory of latent heat, and a proof that the elasticity of caoutchouc, and the ductility of metals, are occasioned by the same canse, namely the latent heat they contain.

1445. Caoutchouc is insoluble in water, but if boiled some time it softens, and then if two pieces be applied to each other, and pressed, they adhere as if they were but one piece. In this way different pieces of caoutchouc may be soldered together, and made to assume any figure we please. This substance is insoluble in alcohol; but it is soluble in ether that has previously been washed with water. Alcohol precipitates caoutchouc from its etherial solution. After the ether is evaporated, the caoutchouc remains unaltered; and this solution might be used like the original milky juice of the tree, for making varnish, and utensils of various kinds of caoutchouc, were not the ether too expensive for ordinary purposes. The great Frederick king of Prussia had a pair of boots made of caoutchouc. A mould of wrought clay, the exact figure of his leg, was covered with etherial solution of caoutchouc, laid on in alternate layers by a brush, until it acquired the proper thickness, after which the clay was knocked in pieces and taken out. Caoutchouc is also soluble in the volatile oils; but after the oil is evaporated it never fully recovers its former elasticity. Dr. Thomson ascertained that alkaline solutions take up a minute portion of caoutchouc. The acids scarcely act upon it, and the sulphuric only chars it externally. Fabroni discovered that well rectified petroleum, or the volatile oil of coal, dissolves caoutchouc, and after the oil is evaporated, leaves it unaltered. We consider this to be a discovery of great importance, as it furnishes a cheap solvent of caoutchouc for converting it into varnish and various useful purposes, which has long been a desideratum in the arts. When heated it melts, but retains ever after the consistence of tar. It burns with a bright white flame, and in the countries where it abounds it is used as candles. It exists in a great variety of plants, but can only be profitably extracted from those in which it abounds. It is thought to be composed of carbon, hydrogen, azote, and oxygen. It is now employed to a considerable extent in rendering cloth and leather water-proof.

Gum Resins.

1446. These substances have long been used in medicine, but they have not attracted much of the notice of chemists. They seem to be composed of extractive, and an oil approaching in its properties to a resin. They are usually solid, opaque, and brittle. They are inflammable, but do not melt by heat like the resins. Their smell is strong, and their taste often acrid. With water they form a milky solution; with alcohol a transparent solution, which becomes milky on adding water. Like resins they dissolve in heated alkaline solutions, and Mr. Hatchett ascertained that sulphuric acid gradually converts them into charcoal and artificial tannin, as it does the resin. The principal of these substances which have been applied to use, are

1447. *Galbanum*, which is obtained from the bubon galbanum, a native plant of Africa. Its taste is strong, and smell peculiar. When distilled it yields about half its weight of volatile oil, which at first is of a blue color.

1448. *Ammoniac* is brought from the East Indies, but its source is unknown in Europe. Its taste resembles that of galbanum, but its smell is more pleasant.

1449. *Olibanum*, is obtained from the juniperus lycia, a shrub which abounds chiefly in Arabia. It consists of yellow, transparent, and brittle masses, whose taste is bitter and nauseous, but when burnt it diffuses an agreeable smell. This is the frankincense of the ancients, and by many sects is still employed as an appendage of public worship.

1450. *Asafœtida* is obtained from the ferula asafœtida, a native plant of Persia. When the plant is about four years old, it is dug up, the roots cleaned, and, their extremities being cut off, there exudes a milky juice. Another portion of the root is then cut off, and more juice exudes, and this process is continued until the roots be exhausted. The juice hardens into brittle grains of different colors, whose taste is acrid and bitter, with a strong alliaceous and fetid smell. Distilled with water or alcohol, it yields a volatile oil which possess all the active properties of asafœtida, and is much used in medicine.

1451. *Scammony* is obtained from the roots of the convolvulus scammonia, a climbing plant of Syria. This substance is employed in medicine as a powerful cathartic.

1452. *Gamboge* or *gamgutt*, is obtained by wounding the shoots, or puncturing the bark, of the stulagmitis cambogioides, a tree which grows in various parts of India. It was first brought to Europe by the Dutch. Taken internally it operates as a violent cathartic. It is partially soluble in water, and almost entirely in alcohol. It is of a fine yellow color, and is used as a paint, for coloring varnishes, and for staining marble.

1453. *Myrrh*, as we are informed by Mr. Bruce, is obtained from a genus of the mimosa, a plant which grows in Arabia and Abyssinia. It forms yellow tears, somewhat transparent when pure. Its taste is bitter and aromatic, its smell peculiar. It was much admired by the ancients, and is still much employed in medicine.

1454. *Euphorbium* is obtained from the euphorbia officinalis, from which it exudes in the form of milky juice, and is afterwards dried in the sun. It is reckoned poisonous. See, for further information on gum resins, MATERIA MEDICA.

COTTON.

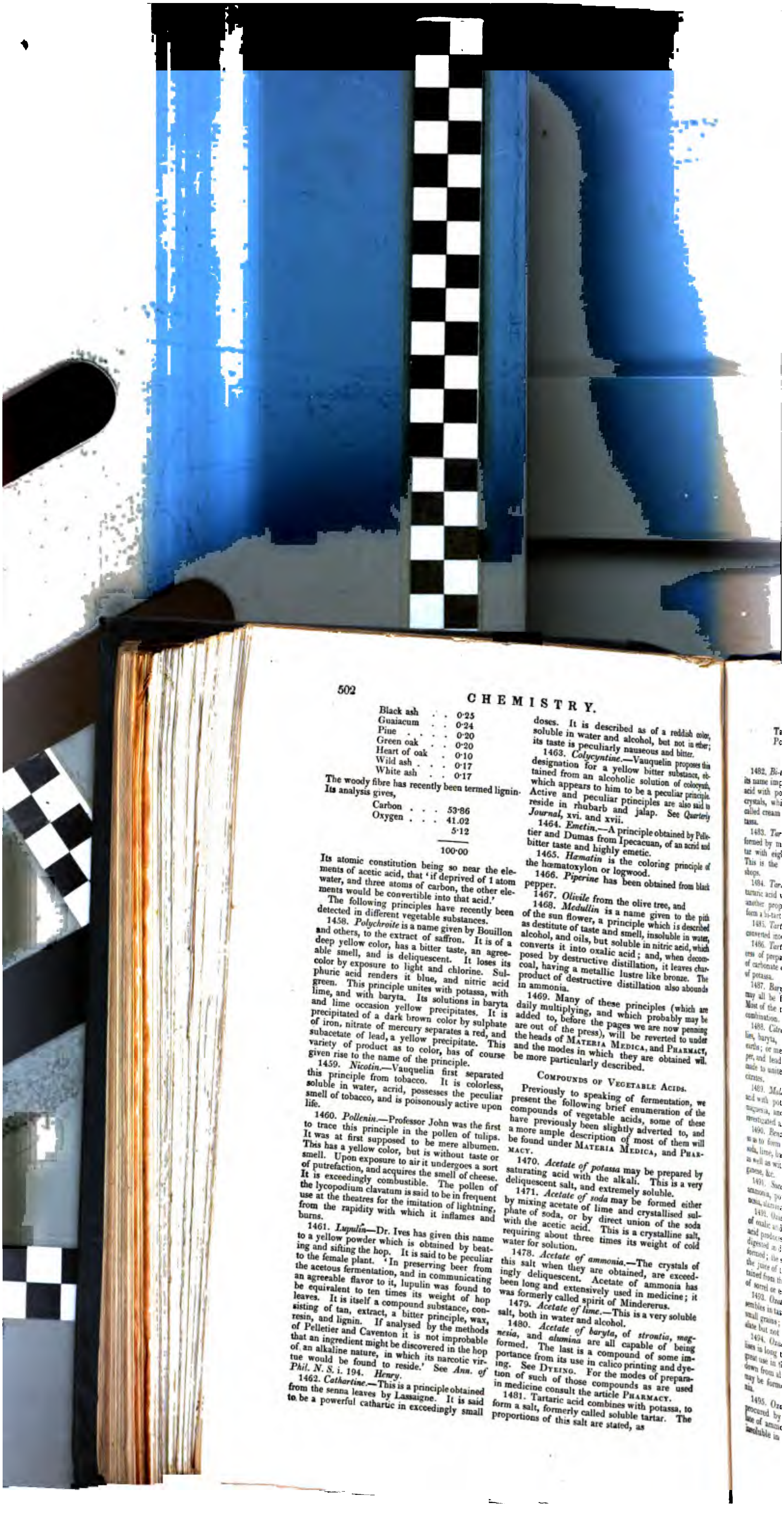
1455. This product makes a conspicuous figure in the clothing of a great many civilised nations, and in this country a vast number of persons are constantly employed in its manufacture. It envelopes the seeds of various plants, and the cotton of commerce is chiefly procured from different species of gossypium. Various plants, which yield cotton, grow wild within the tropics, and several species of them are cultivated in the East and West Indies. According to Mr. Bryan Edwards, those plants in the West Indies which yield the finest cotton, are what are called green seed cotton, from the color of their seeds. Of these there are two varieties, distinguished by the ease and difficulty with which the cotton parts from the seeds. The cotton is enveloped in pods, which open when the seeds are ripe, and the cotton is separated from the seeds by means of rollers.—Cotton seems to be chiefly composed of carbon; but, as it has never been subjected to any precise chemical investigation, we shall not pretend to decide respecting its component ingredients. For the methods of bleaching and dyeing cotton. See BLEACHING and DYEING.

SUBER.

1456. This consists of the outer bark of the quercus suber, or common cork. It is a light, spongy, and elastic substance, and the trees which yield it grow in great abundance in Spain, and various countries not remote from the tropics. It does not expand nor become sufficiently elastic for making corks, until after it has been partially burnt. It burns with a white bright flame, and leaves a light and bulky charcoal. By digestion, water and alcohol extract a yellowish solution from it; sulphuric acid chars it; and nitric acid converts it partly into suberic acid, partly into artificial tannin, partly into a substance resembling wax, and partly into a substance resembling starch. Fourcroy thinks the epidermis of all trees is a substance resembling cork.

WOOD.

1457. All plants contain more or less of what is called woody fibre. If plants be digested first in water and then in alcohol, until these solvents have taken up all the matters with which they can combine, there remains nothing but woody fibre. This consists of longitudinal fibres, easily separable into smaller fibres, and every plant exhibits cross sections peculiar to itself, and a particular arrangement of fibres which would lead one to think that the woody fibres are bundles of regularly formed crystals. From this peculiar arrangement of the fibres, different species of wood can easily be distinguished, even after they are petrified, and form parts of solid rocks. Woody fibre is not altered by water, alcohol, or exposure to the air. Weak alkaline solutions dissolve it, and it may be precipitated from them by an acid without alteration. This property renders woody fibre capable of being extracted from other vegetable products, few of which are soluble in weak alkaline lees. Some of the acids char woody fibre, and it is converted into charcoal when heated to redness, without access of air. When charred by acids, it moulders down into a black powder. When charred by heat its fibres retain their original structure. Woody fibre constituting the bones of plants, it is generally understood that those trees which, after being charred, yield the greatest weight of charcoal compared with the original weight of the wood, form the most durable and least destructive timber. But an experiment of Proust seems to contradict this generally received opinion; though in making such experiments it is hardly possible to be accurate. He took 1·00 of different trees, and found the weight of charcoal they yielded to be as follows:



Black ash	0·25
Guaiacum	0·24
Pine	0·20
Green oak	0·20
Heart of oak	0·10
Wild ash	0·17
White ash	0·17

The woody fibre has recently been termed lignin. Its analysis gives,

Carbon	53·86
Oxygen	41.02
	5·12
	100·00

Its atomic constitution being so near the elements of acetic acid, that 'if deprived of 1 atom water, and three atoms of carbon, the other elements would be convertible into that acid.'

The following principles have recently been detected in different vegetable substances.

1458. *Polychroite* is a name given by Bouillon and others, to the extract of saffron. It is of a deep yellow color, has a bitter taste, an agreeable smell, and is deliquescent. It loses its color by exposure to light and chlorine. Sulphuric acid renders it blue, and nitric acid green. This principle unites with potassa, with lime, and with baryta. Its solutions in baryta and lime occasion yellow precipitates. It is precipitated of a dark brown color by sulphate of iron, nitrate of mercury separates a red, and subacetate of lead, a yellow precipitate. This variety of product as to color, has of course given rise to the name of the principle.

1459. *Nicotin.*—Vauquelin first separated this principle from tobacco. It is colorless, soluble in water, acrid, possesses the peculiar smell of tobacco, and is poisonously active upon life.

1460. *Pollenin.*—Professor John was the first to trace this principle in the pollen of tulips. It was at first supposed to be mere albumen. This has a yellow color, but is without taste or smell. Upon exposure to air it undergoes a sort of putrefaction, and acquires the smell of cheese. It is exceedingly combustible. The pollen of the lycopodium clavatum is said to be in frequent use at the theatres for the imitation of lightning, from the rapidity with which it inflames and burns.

1461. *Lupulin*—Dr. Ives has given this name to a yellow powder which is obtained by beating and sifting the hop. It is said to be peculiar to the female plant. 'In preserving beer from the acetous fermentation, and in communicating an agreeable flavor to it, lupulin was found to be equivalent to ten times its weight of hop leaves. It is itself a compound substance, consisting of tan, extract, a bitter principle, wax, resin, and lignin. If analysed by the methods of Pelletier and Caventon it is not improbable that an ingredient might be discovered in the hop of an alkaline nature, in which its narcotic virtue would be found to reside.' See *Ann. of Phil. N. S.* i. 194. *Henry.*

1462. *Cathartine.*—This is a principle obtained from the senna leaves by Lassaigne. It is said to be a powerful cathartic in exceedingly small doses. It is described as of a reddish color, soluble in water and alcohol, but not in ether; its taste is peculiarly nauseous and bitter.

1463. *Colycyntine.*—Vauquelin proposes this designation for a yellow bitter substance, obtained from an alcoholic solution of colocynth, which appears to him to be a peculiar principle. Active and peculiar principles are also said to reside in rhubarb and jalap. See *Quarterly Journal*, xvi. and xvii.

1464. *Emetin.*—A principle obtained by Pelletier and Dumas from Ipecacuan, of an acrid and bitter taste and highly emetic.

1465. *Hæmatin* is the coloring principle of the hæmatoxylon or logwood.

1466. *Piperine* has been obtained from black pepper.

1467. *Olivile* from the olive tree, and

1468. *Medullin* is a name given to the pith of the sun flower, a principle which is described as destitute of taste and smell, insoluble in water, alcohol, and oils, but soluble in nitric acid, which converts it into oxalic acid; and, when decomposed by destructive distillation, it leaves charcoal, having a metallic lustre like bronze. The product of destructive distillation also abounds in ammonia.

1469. Many of these principles (which are daily multiplying, and which probably may be added to, before the pages we are now penning are out of the press), will be reverted to under the heads of MATERIA MEDICA, and PHARMACY, and the modes in which they are obtained will be more particularly described.

COMPOUNDS OF VEGETABLE ACIDS.

Previously to speaking of fermentation, we present the following brief enumeration of the compounds of vegetable acids, some of these have previously been slightly adverted to, and a more ample description of most of them will be found under MATERIA MEDICA, and PHARMACY.

1470. *Acetate of potassa* may be prepared by saturating acid with the alkali. This is a very deliquescent salt, and extremely soluble.

1471. *Acetate of soda* may be formed either by mixing acetate of lime and crystallised sulphate of soda, or by direct union of the soda with the acetic acid. This is a crystalline salt, requiring about three times its weight of cold water for solution.

1478. *Acetate of ammonia.*—The crystals of this salt when they are obtained, are exceedingly deliquescent. Acetate of ammonia has been long and extensively used in medicine; it was formerly called spirit of Mindererus.

1479. *Acetate of lime.*—This is a very soluble salt, both in water and alcohol.

1480. *Acetate of baryta*, of *strontia*, *magnesia*, and *alumina* are all capable of being formed. The last is a compound of some importance from its use in calico printing and dyeing. See DYEING. For the modes of preparation of such of those compounds as are used in medicine consult the article PHARMACY.

1481. Tartaric acid combines with potassa, to form a salt, formerly called soluble tartar. The proportions of this salt are stated, as

Tartaric acid . . .	57·90
Potassa	42·10
	100·00

1482. *Bi-tartrate of potassa* or *super-tartrate* as its name implies, is a combination of the tartaric acid with potassa in a larger proportion. The crystals, which when powdered, are vulgarly called cream of tartar, are a bi-tartrate of potassa.

1483. *Tartrate of potassa and soda* may be formed by mixing twenty-four of cream of tartar with eighteen parts of carbonate of soda. This is the much famed rochelle salts of the shops.

1484. *Tartrate of soda* is formed by saturating tartaric acid with carbonate of soda. By adding another proportional of the tartaric acid we form a bi-tartrate.

1485. *Tartrate of ammonia* may likewise be converted into a bi-tartrate.

1486. *Tartrate of lime* is formed in the process of preparing tartaric acid by the addition of carbonate of lime to a solution of bi-tartrate of potassa.

1487. *Baryta, strontia, magnesia*, and *alumina*, may all be formed into tartrates by the acid. Most of the metals too, are susceptible of this combination.

1488. *Citrates.*—The fixed and volatile alkalies, baryta, magnesia, and lime, among the earths; or metallic oxides, and zinc, iron, copper, and lead among the metals, have all been made to unite with the citric acid so as to form citrates.

1489. *Malates* or combinations of the malic acid with potassa, soda, lime, baryta, strontia, magnesia, and alumina, have been formed and investigated as well as those of iron and lead.

1490. *Benzoic acid* has been made to combine so as to form benzoates with ammonia, potassa, soda, lime, baryta, strontia, magnesia, alumina, as well as with iron, lead, copper, zinc, manganese, &c.

1491. *Succinates* have been investigated of ammonia, potassa, soda, baryta, strontia, magnesia, alumina, lead, iron, and manganese.

1492. *Oxalate of potassa.*—This combination of oxalic acid and potassa if dissolved in oxalic acid produces a binoxalate, and if this again be digested in diluted nitric acid a quadroxalate is formed; the salt which is thus formed exists in the juice of the wood-sorrel, and when it is obtained from that vegetable it is denominated salt of sorrel or essential salt of lemons.

1493. *Oxalate of soda.*—This salt nearly resembles in taste the oxalate of potassa, it exists in small grains; oxalate of soda may exists in binoxalate but not in quadroxalate proportions.

1494. *Oxalate of ammonia.*—This salt crystallises in long transparent prisms. This salt is of great use in the detection of lime, as it throws it down from almost all its combinations. There may be formed a super or bi-oxalate of ammonia.

1495. *Oxalate of lime.*—This compound is procured by adding either oxalic acid or oxalate of ammonia to any solution of lime. It is insoluble in excess of oxalic acid.

1496. *The oxalates of strontia, baryta, and magnesia*, are nearly insoluble.

1497. *Oxalate of alumina* is soluble in oxalic acid.

1498. If *manganese*, in a state of oxide, be digested with oxalic acid, carbonic acid is evolved, and the manganese reduced to a state of deutoxide unites with the oxalic acid. This, after a time, becomes colorless, and a triple salt is formed containing the protoxide of manganese.

1499 Many beside of the metals combine into oxalates with the oxalic acid.

FERMENTATION.

1500. We now proceed to treat of the principal products of fermentation, or of that decomposition which vegetables undergo when placed in circumstances favorable to the change. Fermentation has been divided into the vinous, acetous, and putrefactive; it is to the first however that we shall confine ourselves in the present instance; since the product of the second, vinegar or acetous acid, has already been noticed, and the putrefactive change or decomposition of bodies is not with strict propriety ranked among the phenomena of fermentation. See DISTILLATION.

VINOUS FERMENTATION.

1501. This is also called the spirituous fermentation, because it produces wine, from which spirits may be obtained by distillation. This process must have been known at a very early period, for we read in the book of Genesis that Noah planted a vineyard, and got drunk with the wine it produced; which seems to indicate that the vinous fermentation was known long before the time of Noah. To bring on this fermentation three things are necessary: 1. A certain proportion of saccharine matter, or sugar. 2. Water, for if the materials be dry, sugar continues unaltered. 3. A temperature from 60° to 70°. The juice of the grape, which is commonly called *must*, ferments of itself at a temperature approaching to 70°, and hence wine must have been early discovered in the warm climates, where they probably used the expressed juice of the grape, or of other fruits, as drink to quench their thirst. To make the fermentation succeed well, a large body of the liquor is convenient, because small quantities are apt to run into the acetous fermentation. In must, besides sugar, there is a portion of gluten, of jelly, and of tartar. It seems to be the gluten which conveys the disposition towards spontaneous fermentation. The juices of all berries which contain sugar, such as gooseberries, raspberries, strawberries, elderberries, currants, &c. &c. likewise the expressed juices of many fruits, such as apples, pears, &c. &c., the juices of many trees, such as the birch, the sugar maple, &c. &c. ferment spontaneously, and produce wine. The juice of the sugar-cane also ferments spontaneously, and from its wine, rum is extracted by distillation. If the juices of fruits or of berries contain too little sugar, it is necessary to supply the deficiency by adding more. If they contain too much, and appear viscid, water must be added, or fermentation will not take place, or it will go on very slowly. See WINE.

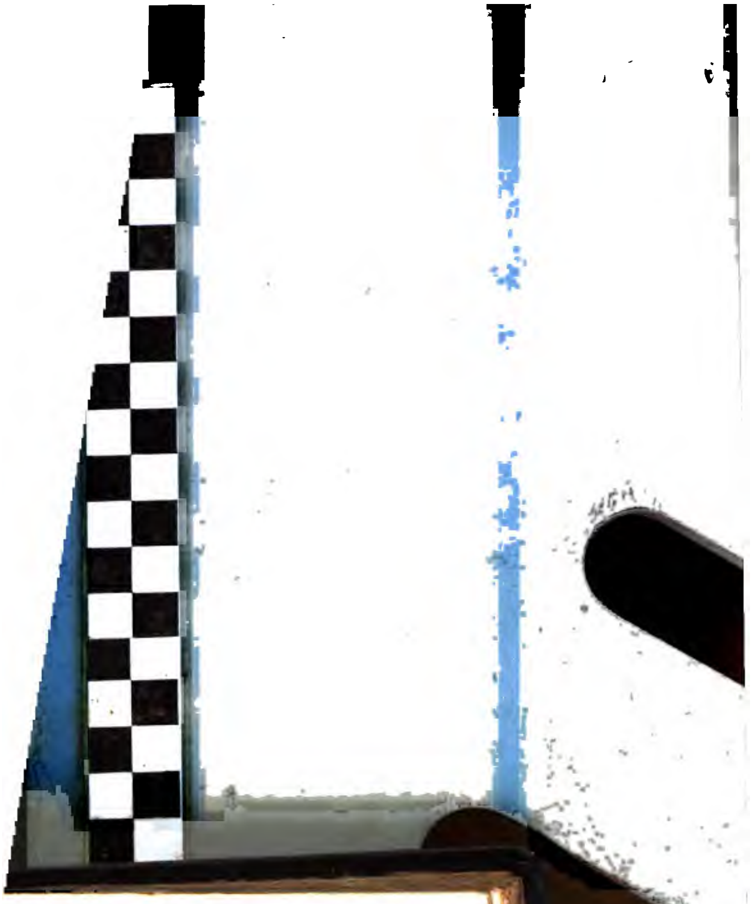
1502. Beer is fermented from the seeds of plants, after they have been converted into a saccharine substance by the process of germination or malting. See Malt and Malting. Almost every species of corn has been employed for this purpose. In India they use rice; and Mr. Mungo Park informs us, that in the interior of Africa they make beer from the holcus spicatus. Our ancestors used honey and various herbs to produce an intoxicating liquor, to which they gave the name of mead. In modern Europe, barley is the grain universally used for making beer, and it is commonly malted before it is applied to this purpose; though in some cases a proportion of raw grain is employed. The Greeks ascribed the invention of beer to the ancient Egyptians.

1503. The extract of malt does not readily ferment of itself, even though the temperature be favorable; or it ferments very slowly; or is apt to run into the acetous or the putrefactive fermentations. To excite the vinous fermentation, a proportion of yeast is always added to the extract, or wort. Yeast is ascertained to consist chiefly of gluten in a particular state, with a quantity of carbonic acid gas entangled in its viscid substance. Though the vinous fermentation has been excited by impregnating the liquor with carbonic acid gas, it does not appear that yeast owes its properties to this gas. The bakers of Paris have long been accustomed to bring their yeast from Flanders, and, to save carriage, they squeeze the juice through bags and convey it in a dry form. In addition to this, Sir John Dalrymple dried yeast in rooms heated to a high temperature by stoves, after it had been previously squeezed in bags of cloth. His yeast appeared in the form of a dry powder, yet, after being moistened with water, it excited the vinous fermentation, after being conveyed to London, to the West Indies, and to several remote parts of the world. By his process, at least, no doubt can be entertained, but all the carbonic acid gas that previously existed in the yeast, was completely expelled. Yet soon after it was moistened it began to froth, and to emit carbonic acid gas as it did when fresh. It seems then that we are still unacquainted with the properties of yeast, and indeed are much in the dark with regard to the most ordinary processes which are going around us. But yeast bears a strong resemblance to the gluten in must, and the expressed juices of fruits. When this is extracted from them, they will not ferment unless it be restored. Sugar, though it be dissolved in water, will not ferment, but if mixed with the juices of fruits or berries, or with yeast, it ferments rapidly. The yeast, with a considerable addition of new yeast evolved from the fermenting mass, rises to the surface of the liquor, where it forms a frothy turbid scum. In the making of beer, the object is not to push the fermentation until all the saccharine matter be decomposed, but to moderate its violence, and to check it in due time. For this purpose a certain quantity of hops is boiled with the wort before it is set to ferment. The essential oil of the hops conveys an agreeable flavor to the beer, and their bitter checks the violence of the fermentation, and prevents the liquor from running into the acetous or putrid fermentations. See Beer and Brewery.

1504. But in the making of the wash used by distillers, which is a species of beer, a different plan is followed out. They apply a much greater proportion of yeast, and push the fermentation until all the saccharine be exhausted. They well know that if any sugar remains in their liquor undecomposed, it is lost to them, and yields no spirit. Another circumstance deserves attention respecting the distillers. They find that a large proportion of raw grain, mixed with a small proportion of malt, yields more spirit than if they operated upon malt alone. They vary their proportions of these ingredients, from three to eight or ten measures of raw grain to one of malt, according to the quality of the grain and of the malt. These being hashed, or bruised into coarse meal, are thrown into their mashing tun, and, after the hot water is let in upon them, are violently agitated in order to produce a complete incorporation with the liquid. The consequence is that a wort, or as they call it wash, is produced more highly saccharine than if the whole material operated upon had consisted of malt.

1505. The phenomena attending the vinous fermentation, are a violent agitation in the liquor. It becomes thick and muddy, and throws a voluminous frothy matter to the surface. Much carbonic acid gas escapes. The agitation and increase of bulk of the liquor, seem to be owing to the production and escape of this gas; and the agitation produced by the escape of this gas, seems to bring all the substances dissolved in the liquor into chemical contact, so that they can mutually decompose each other. Access of air is not necessary to the vinous fermentation; but there must be sufficient opening to allow the carbonic acid gas to escape; otherwise the process will not commence, or will be wholly checked; as it is only by the agitation of the liquor, in consequence of the escape of this gas, that the ingredients are brought to act upon each other. The carbonic acid in its escape carries off a considerable portion of the spirit already formed, and also of the unchanged liquor. It might, perhaps, be possible to conduct the carbonic acid through spaces where it might deposit its spirit, so that distillers might gain as much, or at least much better spirits from their fermenting tuns, than they obtain from their stills. During the fermentation, a considerable increase of temperature takes place, which varies according to circumstances.

1506. When the process is finished, which requires longer or shorter time, according to the temperature of the weather, and other circumstances, the liquor is no longer muddy but transparent. Its specific gravity is considerably diminished. It has no longer a sweet, but a vinous taste, and conveys a sensation of heat to the palate. Boerhaave was the first person who attended to the phenomena of fermentation; and Lavoisier has shown that during the process there is a mutual decomposition of sugar and water, by which alcohol, or ardent spirit, is produced. Chaptal has also shown that in the fermentation of wine, a portion of the tartaric acid is decomposed, and converted into malic acid; and that, during the process, a quantity of azotic gas is evolved. From what source this gas



lecide. Sugar is not
; and the experiments
onclude, that the pro-
nd the vinous fermen-
sugar in the liquor is

COHOL.

Arabic word, and it means
rst product that was ob-
was invented. It is also
because it is obtained by
nd other fermented liquors.
Holy Writ that Noah planted
wine; and it is probable
his liquor was discovered in
Beer seems to have been used
the time of Herodotus, and
it was the drink of the an-
Though the Greeks and Ro-
e of wine, it does not appear
that they were acquainted with
spirits. The northern nations
intoxicating liquors from the
they seem to have chiefly used
mixed with bitter and aromatic

RIT OF WINE.

at time the distillation of ardent
mented liquors was first invented,
ly known, though it would seem
was long practised among the Hin-
er eastern nations, before it was
e Arabians, or through them was
Europe.

hen any fermented liquor is distilled,
rt that comes over is ardent spirits.
lucts are known by different names,
to the substance from which they are
Thus brandy is distilled from wine,
the fermented juice of the sugar cane,
nd gin from the fermented infusion of
d grain. But, whatever name may be
ardent spirits, they all consist of nearly
gredients, namely, water, spirit or alcohol,
little oil or resin, to which they owe their
and color.

0. When the product of the first distilla-
s distilled a second time, the portion which
s first over, being a more pure spirit than
re, is called rectified spirits, and is sold
er the name of alcohol, or spirit of wine. It
, however, contains a portion of water, if not
of oil, from which it may be separated by
following process.

1511. A quantity of highly rectified spirit is
ixed with a portion of very dry and warm salt
tartar, or carbonate of potassa, which has a
trong affinity for water and oil, but does not
combine with pure spirit. Being agitated, the
potassa combines with the water, and sinks with
it to the bottom of the vessel, while the spirit
floats at top. The spirit may then be decanted
off, or drawn off by a siphon; or the solution of
water and potassa may be drawn by a stop-cock
through the bottom of the vessel. The alcohol
thus obtained may be separated from any minute
portion of alkali it may contain, by a very slow
distillation from a water-bath. The spirit passes
over and leaves the potassa behind; but it is
proper not to continue the distillation to dryness, lest water and oil may be forced over from the remnant of potassa. This process was first mentioned by Sully, and by its means alcohol is obtained in its highest state of purity. Arnold de Villa Nova, professor of medicine at Montpelier first formed tinctures and introduced them into medicine by the use of alcohol; and he seems first to have accurately described this liquid about the end of the thirteenth century.

1512. Alcohol thus prepared and purified is a light, colorless, and transparent liquid, of a penetrating and agreeable smell, and of a warm, stimulating, and acrid taste. It intoxicates much more powerfully than wine, or any other fermented liquor. Its specific gravity, when nearly pure, is 0·800, but at the temperature of 60° it is seldom obtained above 0·820, and the alcohol of commerce, which is only rectified spirits, is seldom under 0·8371. Muschenbroeck, by means of salt of tartar, obtained it as low as 0·815, but in general, what is obtained by that process is seldom under 0·821.

1513. Dr. Black, by repeated distillations from muriate of lime, obtained alcohol, as low as 0·800. Lowitz of Petersburgh, and Richter, by following the same plan, obtained alcohol of a still lower specific gravity than Dr. Black. The latter chemist having exposed muriate of lime to a red heat, reduced it to powder, and put it into a retort while yet warm. He then poured upon it, at different intervals, a quantity of alcohol which had been purified to 0·821, nearly equal to the weight of the salt. A violent heat was produced, and the retort being put upon a sand-bath, and receiver adjusted, the liquid was made to boil. The salt was soon dissolved, and formed with the alcohol a thick solution. What had come over into the receiver was now poured back, and the whole distilled with a very gentle boiling nearly to dryness. The alcohol thus obtained was of the specific gravity of 0·792, at the temperature of 68°. By a similar process, Lowitz obtained alcohol of the specific gravity 0·791 at the temperature of 68°. These may be considered as the purest states of alcohol, as there are no means known by which it can be deprived of more water. But, as the last portions of water seem to adhere to it with great force, it may possibly still contain some water. The specific gravity of alcohol is diminished in proportion as it is deprived of water; and it increases in proportion as water is added to it. Hence the specific gravity of this liquid is regarded as a standard of its purity.

1514. Alcohol has never been known to congeal with the most intense cold that can be applied. Mr. Walker cooled a spirit of wine thermometer to —91°, without any appearance of congelation. It is also very volatile. Fahrenheit found that alcohol, which at the temperature of 60° was about 0·820 of the specific gravity boiled at 176° of temperature. When of 0·800 specific gravity, it boils at 173½°. In vacuo it boils at 56°, so that, were it not for the pressure of the atmosphere, this fluid would always be in the form of a gas, transparent and invisible like common air.

1515. It is owing to its superior volatility tha alcohol, or spirit, separates from the watery mass in the process of distillation. If managed with skill and attention, it is of no consequence whether the process of distillation be conducted rapidly or slowly. However violent the heat may be which is applied externally to the still, the internal heat can never be greater than the vaporific point of the liquor. Each of the ingredients will come over in the order of its volatility, and it is only necessary to be more exact in turning aside the last portions, which consist of spirit combined with oils. By attention to this circumstance the Scotch distillers, who charge and run a still in less than five minutes, can make better spirits than formerly, when it required a week or a fortnight to run a still.

1516. Alcohol combines with water in all proportions; and as there is a mutual penetration of the liquids, and a variation of the specific gravity of the mixture by every variation of the proportions, the specific gravity of the various compounds of alcohol and water cannot be deduced by calculations from medium observations, but must be ascertained by experiment in each individual case. Lowitz, as above stated, having purified alcohol to 791 of specific gravity, at temperature 68°, proceded to ascertain the specific gravity of various mixtures of this highly rectified alcohol with different proportions of water. The importance of this object for revenue and commerce, induced the British government to employ Sir Charles Blagden to execute a very minute series of experiments on this subject, which were published in the Philosophical Transaction, 1790; and the result of these were exhibited by Gilpin, in the same work, 1794, in a set of tables. The standard alcohol employed at temperature 60° was 0·825 of specific gravity, of which, according to Mr. Gilpin, 100 parts contained 4·5 of water; but according to Lowitz's experiments, it must have contained

89 pure alcohol,
11 water.

100

1517. For an account of the hydrometer used to determine the strength of alcohol, and for several other particulars relating to this subject, the reader is referred to the article Alcohol, taken principally from Dr. Ure's Dictionary.

1518. Alcohol is not altered by air or oxygen gas at a moderate temperature; but when kindled it burns in them with great violence, and leaves no residuum. Boerhaave first observed that the condensed vapor of burning alcohol consisted of water; and Dr. Black ascertained that the weight of this water exceeded that of the alcohol consumed. Lavoisier found that the weight of the water exceeded that of the alcohol, by about one-seventh part; from which he inferred that hydrogen formed a considerable constituent of alcohol. Dr. Ingenhousz first observed, that if the vapor of alcohol be mixed with a due proportion of oxygen gas, and fired by a lighted taper, or by the electric spark, it detonates with violence, and the products are water and carbonic acid.

1519. When assisted by heat, alcohol dissolves a little phosphorus; and when this solution is dropped into a glass of water, in the dark, a beautiful jet of flame rises above the surface, which is owing to sulphureted hydrogen gas escaping from the water. Alcohol hardly combines with sulphur except when the two bodies are mixed in a state of vapor. This is done by placing a phial containing alcohol in the bottom of a large glass cucurbite surrounded by flowers of sulphur. A head being adjusted, and the heat of a sand-bath applied, both bodies rise in vapor at once, and form a red liquor in the head of the cucurbite. Water precipitates the sulphur from this combination. Very strong alcohol dissolves a little sulphur if digested upon its flowers some time, especially if assisted by heat; and the quantity dissolved is in proportion to the strength of the alcohol.

1520. Alcohol dissolves the fixed alkalis very readily, forming an acrid reddish colored liquor, which was formerly called the acrid tincture of tartar. This liquor may be distilled over, though it is partly decomposed during the process. It is only by solution in alcohol that these alkalis can be obtained in a state of purity. Ammonia also dissolves in alcohol, with the assistance of a moderate heat; but a greater heat expels the alkali in the form of gas, with some of the alcohol in union with it.

1521. Of the earths, alcohol only acts on strontia and baryta. It absorbs its own weight of nitrous gas. The sulphuric and nitric acids, and also chlorine, decompose alcohol. It dissolves all the other acids except the metallic, phosphoric, and prussic acids.

1522. Alcohol dissolves a great variety of saline substances, and hence proves a valuable instrument in the hands of the chemist, not only for obtaining the alkalis in a state of purity, but for separating salts from each other, and from other bodies, with a view to investigate their properties. For this purpose tables have been constructed, exhibiting the proportions of the several salts that are soluble in alcohol, with the temperature at which the solution takes place; and also the salts that are not soluble at any temperature. Such tables are highly useful for assisting the investigations of the chemist; they will be found in the article Alcohol, to which we have already referred.

1523. When the solutions of salts in alcohol are set on fire, the flame varies in color according to the salt: and this property might be improved into a test of the genus of salt held *in solution*. Thus the flame from solution of nitrate of strontia is purple; that from the cupreous salts is green; that from muriate of lime is of a red color, &c.

1524. Various opinions have been entertained concerning the composition of alcohol. Formerly it was supposed to be phlogiston combined with water by means of an acid, or phlogiston combined with water alone. Lavoisier endeavoured to solve this problem by burning alcohol in a lamp, in a close vessel over mercury, to which was introduced through a pipe, a regulated quantity of oxygen gas, to support the combustion. The products were carbonic acid gas and water, the amount of which being ascertained, and compared with that of the alcohol and oxygen gas consumed, he calculated that 76·7083 grains of alcohol consumed, were composed of

ents have been
ılcohol; and the
o Mr. Brande's
ure, as quoted by
d alcohol through
ain, and terminat-
g. and surrounded
carefully weighed.
s, that 100 parts of

	13·70
. .	51·98
. .	34·32
	100·00

to 3 proportionals of
on = 11·4; and 1 of
y be regarded as com-

. .	61·63
. .	38·37
	100·00

t as composed of 1 volume
ume of the vapor of water,
condensed into one, the
apor of alcohol, compared
ll be 1·599, or, according

whom we have extracted
e since made some experi-
order to determine the agi-
ng question, whether the
llation elicits existed before-
ted liquors, or whether it is
the process of distillation.
are related in the Philosophi-
for 1811 and 1813, and they
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educt, and not formed by the
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rvention of heat, by processes in
more can be effected than the
ater.'

nall take the liberty of extracting
able from the Manual of Chemis-
he different proportions of spirit,
in different kinds of fermented

	Proportion of Spirit per cent. by measure.
	26·47
	24·35
Average	25·41
wine	26·40
	25·77
	23·20
Average	25·12
la	26·03
	25·05
Average	25·09

		Proportion of Spirit per cent. by measure.
4. Port		25·83
Ditto		24·29
Ditto		23·71
Ditto		23·39
Ditto		22·30
Ditto		21·40
Ditto		19·00
	Average	22·96
5. Madeira		24·42
Ditto		23·93
Ditto (Sercial)		21·40
Ditto		19·24
	Average	22.27
6. Currant wine		20·55
7. Sherry		19·81
Ditto		19·83
Ditto		18·79
Ditto		18,25
	Average	19·17
8. Teneriffe		19,79
9. Colares		19·75
10. Lachryma Christi		19·70
11. Constantia, white		19·75
12. Ditto, red		18·92
13. Lisbon		18·94
14. Malaga		18·94
15. Bucellas		18·49
16. Red Madeira		22·30
Ditto		18·40
	Average	20·35
17. Cape Muschat		18·25
18. Cape Madeira		22·94
Ditto		20.50
Ditto		18·11
	Average	20·51
19. Grape wine		18·11
20. Calcavella		19·20
Ditto		18·10
	Average	18·65
21. Vidonia		19·25
22. Alba Flora		17·26
23. Malaga		17·26
24. White hermitage.		17·43
25. Rousillon		19·00
Ditto		17·26
	Average	18·13
26. Claret		17·11
Ditto		16·32
Ditto		14·08
Ditto		12·91
	Average	15·10
27. Zante		17·05
28. Malmsey Madeira		16·40
29. Lunel		15·52
30. Sheraaz		15·52
31. Syracuse		15·28
32. Sauterne		14·22
33. Burgundy		16·60
Ditto		15·22
Ditto		14·53
Ditto		11·95
	Average	14·57
34. Hock		14·37
Ditto		13·00
Ditto (old in cask)		8·88
	Average	12·08
35. Nice		14·63

		Proportion of Spirit per cent. by measure.
36.	Barsac	13·86
37.	Tent	13·30
38.	Champagne (still)	13·80
	Ditto (sparkling)	12·80
	Ditto (red)	12·56
	Ditto (ditto)	11·30
	Average	12·61
39.	Red hermitage	12·32
40.	Vin de Grave	13·94
	Ditto	12·80
	Average	13·37
41.	Frontignac (Rivesalte)	12·79
42.	Cote Rotie	12·32
43.	Gooseberry wine	11·84
44.	Orange wine—average of six samples made by a London manufacturer	11·26
45.	Tokay	9·88
46.	Elder wine	8·79
47.	Cider, highest average	9·87
	Ditto, lowest ditto	5·21
48.	Perry, average of four samples	7·26
49.	Mead	7·32
50.	Ale (Burton)	8·88
	Ditto (Edinburgh)	6·20
	Ditto (Dorchester)	5·56
	Average	6·87
51.	Brown Stout	6·80
52.	London Porter (average)	4·20
53.	Ditto small beer (average)	1·28
54.	Brandy	53·39
55.	Rum	53·68
56.	Gin	51·60
57.	Scotch Whiskey	54·32
58.	Irish ditto	53·90

ETHER.

1528. This liquid is alcohol decomposed, and converted into a volatile fragrant substance by the action of acids, assisted by heat. The properties of ether are somewhat different according to the acid employed in its preparation, and it is hence distinguished into sulphuric ether, nitric ether, muriatic ether, &c.

SULPHURIC ETHER.

1529. Sulphuric ether is thus prepared:—Equal parts of alcohol and sulphuric acid are mixed and put into a retort, to which a large receiver is luted, and surrounded with ice, or the coldest water that can be procured. A gradual heat is applied to the retort, and, when the mixture boils, ether comes over and trickles down the sides of the receiver. When the product is equal to the half of the alcohol employed, the process must be stopped.

1530. This ether contains a portion of sulphurous acid, which may be separated by distilling it a second time, with a very moderate heat, from a little potassa. Mr. Dide recommends, as a more perfect purification, digesting, and afterwards distilling it from black oxide of manganese in powder. The sulphurous is converted into the sulphuric acid, and combines with the manganese, and the ether should be distilled by the heat of a water-bath. Another process, and which is reckoned the best, was employed by Mr. Wolfe. A bottle, being three-fourths filled with the impure ether, and a little water and slaked lime added, is violently agitated, and kept some time in water before taking out the cork. If still the smell of the acid remain, more lime must be added, and the bottle agitated as before. The acid combines with the lime, and the mixture being allowed to settle, the ether is drawn off by a syphon, and distilled by a very gentle heat as before. This is called the rectification of ether.

1531. This ether still contains a portion of alcohol in its composition, and is seldom lighter than 0·775. Mr. Lowitz separated a great part of the alcohol by throwing in dry powdered salt of tartar, or dry powdered muriate of lime, in small portions, as long as the alcohol continued to dissolve these salts. The alcohol formed a liquid solution at bottom, while the ether swam at top. Its specific gravity was now only 0·746, after being treated with the salt of tartar, and 0·632 with the muriate of lime, at the temperature of 60°. This ether contained a small portion of the salts that had been mixed with it, from which it might be separated by distillation; but this causes much of it to assume the gaseous form. The common method of separating the alcohol from rectified ether is by mixing, and afterwards distilling it from water, which is not so effectual as the process of Mr. Lowitz.

1532. Ether thus obtained is a light colorless liquid, of a very fragrant smell, and a hot pungent taste. It is so volatile that it cannot be poured from one vessel to another, without a considerable portion being evaporated. When poured on a table it quickly evaporates, and so much cold is generated by the evaporation, that if a phial filled with water be covered with a cloth, and dipped twice or thrice in ether, and exposed to the air, the water will be frozen. Ether boils at 98° in the open air, and at 20° below 0 in vacuo. Hence, were it not for the pressure of the atmosphere, this substance would always exist in the form of a gas. It speedily assumes the gaseous form in the open air. When exposed to a cold of 46°, it freezes and crystallises.

1533. Ether is a highly inflammable substance, and when kindled in contact with oxygen gas, or common air, it rapidly burns with a fine white flame, leaving behind some traces of charcoal and of sulphuric acid. During combustion, carbonic acid gas is generated.

1534. Dr. Priestley observed that if ether be thrown in among any gaseous body, standing over mercury, it always doubles the bulk of the gas. If oxygen gas be expanded by ether, and kindled, it burns slowly, but without explosion. But Mr. Cruickshanks observed, that if one part in bulk of this mixed gas be added to three parts of pure oxygen gas, and kindled by a taper, or the electric spark, a very loud explosion takes place, and the products are water, and 2½ parts of carbonic acid. He ascertained that one part of the vapor of ether requires 6·8 parts of oxygen gas to consume it completely, and from the relative proportions of the products he infers that the carbon contained in ether is to its hydrogen as five to one.

1535. Dr. Ingenhousz discovered that if one drop of ether be thrown into a bottle, for every ten inches of air it contains, it detonates on applying a lighted taper. The same method succeeds with oxygen gas; but, when too much ether is added, it burns slowly without detonation.

1536. When the vapor of ether is passed through a red hot porcelain tube, it is wholly decomposed, and a great quantity of carbureted hydrogen gas is produced.

1537. Ten parts of water only take up one part of ether, but this fluid combines with alcohol in all proportions. Ether dissolves a small proportion of phosphorus, but the addition of a little alcohol renders it milky; and by this we may discover whether ether be adulterated with alcohol. Twelve parts of ether dissolve one of sulphur, when long digested on flowers of sulphur in a cold state. The solution is colorless, and has the taste and smell of sulphureted hydrogen. Ether also combines with sulphur when they are brought to act upon each other in the state of vapor. Upon the other simple combustibles it is not known to act.

1538. Ether does not act upon metals, but it revives gold and silver when dropped into their solutions. It dissolves muriate of gold, and the chloride of mercury. It absorbs nitrous gas in great quantity.

1539. Sulphuric acid converts ether into a peculiar oil, called the sweet oil of wine, and this oil is also formed during the process by which ether is made, and comes over if the distillation be continued. If a small quantity of ether, or a paper dipped in ether, be introduced into a bottle filled with chlorine gas, from which water has been abstracted, it first produces a white vapor, and then explodes and inflames spontaneously. A considerable quantity of charcoal is deposited, and carbonic acid gas is formed. The action of the other acids upon ether has not been minutely examined.

1540. Ether dissolves the fixed and volatile oils, resins, and the fluid bitumens; but it does not act upon gums.

1541. Much difference of opinion has been entertained respecting the composition of ether. Macquer supposed it to be alcohol, which the sulphuric acid had deprived of all its water. Scheele supposed it to be alcohol deprived of part of its phlogiston. Pelletier concluded from is experiments, that it is alcohol combined with oxygen. Dabit supposed ether to contain a greater proportion of oxygen and carbon, and a maller proportion of hydrogen than alcohol. The experiments of Fourcroy and Vauquelin ended to subvert these opinions.

1542. They remarked three periods in the tion of sulphuric acid upon alcohol. First, hen a small quantity of ether and water are rmed without the assistance of heat. The cond, when all the ether which can be obtained disengaged by the assistance of heat, without e accompaniment of sulphurous acid. The ird, when the sweet oil of wine, olefiant gas, etous acid, sulphurous acid, and carbonic acid, e afforded. The olefiant gas has been described, d they observed that the formation of water is mmon to all these stages. They hence inred, that alcohol was decomposed during this process, in the same way as if it had been passed through an ignited tube. Ether they supposed to be alcohol, from which part of its oxygen and hydrogen had been abstracted, and formed into water. The sweet oil and olefiant gas to be a continuation of this process, and not to differ from the ether, except in containing a greater proportion of carbon. The sulphurous and carbonic acids they supposed to arise from the decomposition of part of the sulphuric acid, by means of carbon, towards the conclusion of the process.

1543. Saussure considers the component parts of ether to be

Hydrogen . . .	14·40
Carbon	67·98
Oxygen	17·62
	100·00

1544. Contrasting, says Dr. Henry, the composition of alcohol, and that of ether, it will be easy to perceive what takes place when the former is converted into the latter.

Alcohol consists of	Ether consists of
Olefiant gas, 4 atoms	Olefiant gas, 4 atoms
Aqueous vapor, 2 ditto	Aqueous vapor, 1 atom
Or in volumes.	In volumes.
Olefiant gas, 4 volumes	Olefiant gas, 4 volumes
Aqueous vapor, 4 ditto	Aqueous vapor, 2 ditto

To change alcohol into ether, all that is necessary is to take away one atom, or two volumes, of aqueous vapor; and in this removal of one-half of the water, which forms an element of alcohol, it seems to be universally agreed that etherification consists, even among those who differ as to the precise number of atoms constituting those fluids. If then the conversion could be made without any loss, 46 parts of absolute alcohol should give 37 parts of ether, or 100 parts, by weight, of alcohol should give very nearly 80¼ of ether, a proportion which, owing to a variety of causes, can never be obtained in practice.

1545. When we act upon alcohol with a proportion of sulphuric acid, sufficient to take away the whole of the water, we obtain little or no ether. Olefiant gas is in this case the principal product, mixed, however, with some sulphurous and carbonic acid gases, which are formed by the too energetic action of the sulphuric acid on the carbon of the alcohol. We can at pleasure then convert alcohol either into ether or olefiant gas, though each of those products is always accompanied by others, resulting from a still further decomposition of that fluid into its ultimate elements.

NITRIC ETHER.

1546. Nitric ether was first discovered by Kunkel in 1681; afterwards by Navier in 1742; and by Sebastiani in 1746.

1547. It was first prepared as follows:—Into a strong bottle, immersed in cold water or ice, twelve parts of alcohol are put, and eight parts of nitric acid are poured in at intervals, in small quantities at a time, and the bottle shaken at each addition of the acid. The bottle is well corked, and the cork secured by leather. After five or six days, ether is formed, which floats on the surface of the liquor. The cork must first be pierced with a needle, to allow a quantity of nitrous gas to escape; after which it may be pulled out, and the ether drawn off from the surface by a glass syphon.

1548. As the bottle is very apt to burst, by the quantity of nitrous gas generated during this process, Dr. Black adopted a very ingenious method of preventing this. Having put the proper quantity of acid into a bottle, he gently poured upon its surface a quantity of water, and upon the water the proper proportion of alcohol, without agitation or mixture. Thus he had a stratum of water interposed between the stratum of acid and alcohol, with which, each combining slowly, they met and acted upon each other without violence, and thus formed ether.

1549. The most expeditious method of obtaining nitric ether is that which was proposed by Chaptal, and improved by Proust:—A mixture of 32 parts of alcohol and 24 of nitric acid, of specific gravity 1·3, is put into a retort. A large globular glass retort is luted to the receiver, furnished with a tube of safety. A tube connects this with a second vessel, which is also furnished with a tube of safety. Three of Wolfe's bottles, half full of alcohol, are connected by tubes with this second vessel. The apparatus being thus disposed, heat is applied in a chaffing dish to the retort, and removed as soon as the effervescence commences. The undecomposed acid which passes over is condensed in the two receivers, and the ether combines with the alcohol in Wolfe's bottles, and chiefly in the first; while the tubes of safety prevent the nitrous gas from bursting the vessels. To separate the ether from the alcohol, saturate the latter with pure potassa, and distil with a gentle heat.

1550. The nitrous ether, thus obtained, contains a considerable portion of nitrous gas, and is hence very volatile. It contains also some nitric acid and oil, to which it owes its yellow color. Mixing it with water separates the nitrous gas; and the oil may be abstracted by repeated distillation from potassa or sugar. When kept some time, the nitric acid is decomposed, forming water and oxalic acid, which go to the bottom.

1551. Nitric ether is heavier than sulphuric ether, its specific gravity being 0·9000. Its taste and odor are nearly the same, though not quite so pleasant, owing probably to an admixture of foreign matter, from which the means have not been discovered of separating it.

1552. Nitric ether, according to Thenard, is composed of

Oxygen . . .	48·52
Carbon . . .	28·45
Nitrogen . . .	14·49
Hydrogen . .	8·54
	100·00

Etherised Nitrous Gas.

1553. If equal parts of alcohol and nitric acid be mixed, a violent effervescence ensues, or, if the acid be weak, when heat is applied. Much gas escapes, which may be collected in a vessel over water, and is a compound of nitrous gas and ether.

1554. This gas has a disagreeable odor, mixed with that of ether. It is absorbed by water, alcohol, and solution of potassa; burns with a yellow flame, and detonates when fired along with oxygen gas. It is decomposed by the sulphuric, sulphurous, nitric, and muriatic acids, which combine with the ether, and leave the nitrous gas unchanged. The residuum, after this gas is extricated, consists chiefly of acetic acid.

1555. A mixture of one part alcohol and three parts nitric acid of the specific gravity 1·261, effervesces and emits the same etherised nitrous gas. When the residuum, after the gas is extricated, is allowed to cool, it deposits crystals of oxalic acid.

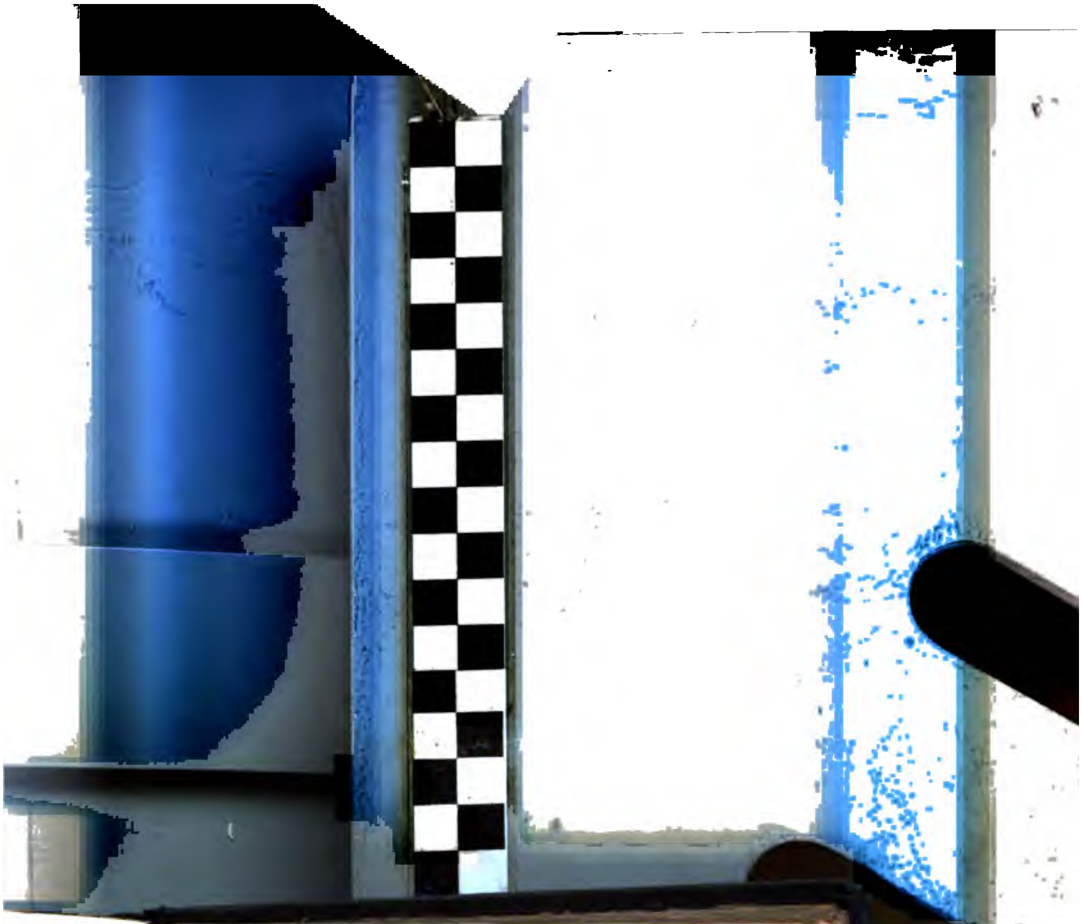
1556. When one measure of nitric acid is poured upon its own weight of alcohol, and the same measure of sulphuric acid is added soon after, the mixture takes fire, and burns with great violence. In this case, if the products be collected, they are found to be ether and oil, which pass over when performed in a retort, or other close vessel.

Muriatic Ether.

1557. Muriatic ether may be made from the chloride of mercury, iron, arsenic, and antimony; but the salt which answers best is the chloride of tin. Courtanvaux first formed ether from this salt in 1759. Three parts of fuming chloride of tin, and one part of alcohol are mixed together; and, after the heat and effervescence have ceased, the mixture is put into a retort to which two large receivers are luted, and immersed in the coldest water that can be got, or in ice; on applying a moderate heat, there first comes over a little alcohol, then ether.

The liquid muriatic acid contains too much water to act upon alcohol so as to form ether. But ether may be formed by causing the acid in its gaseous form, when as much divested of water as possible, to act upon alcohol. For this purpose common salt should be kept at least an hour in a state of fusion, in order to expel its water of crystallisation. Having put 20 parts of this dried salt into a tubulated retort, which is connected by a bent tube, with a Wolfe's bottle containing 10 parts of the strongest alcohol, pour through the tube of the retort 10 parts of the most concentrated sulphuric acid. Having allowed the air in the vessels to escape, distil over the muriatic acid gas by the heat of a sand-bath, while the Wolfe's bottle is kept as cool as possible. The muriatic acid passes over, and incorporates with the alcohol in the bottle. This product being put into a retort, should be distilled over to about one-half. The product thus obtained is ether mixed with alcohol, which being saturated and agitated with an alkaline lee, the ether, which is usually 2½ parts, floats on the surface, and may be drawn off by a syphon.

1558. Muriatic ether only differs from the sulphuric, in exhaling an acrid odor, similar to that of sulphurous acid, when burnt; and in having an astringent taste like alum. Its specific gravity is about 0·719. An improved method of preparing this ether, and an account of its pro-



perties, by Thenard, may be found in Nicholson's Journal xviii. 177, or in the Philosophical Magazine xxx. 101. Its nature has been a subject of doubt. Boullay considers it as a compound of muriatic acid and alcohol. But Robiquet and Colen, with great probability, regard it as a compound of olefiant gas with muriatic acid. *Henry.*

ACETIC ETHER.

1559. Count de Lauraguais, in 1759, discovered that ether may be formed by the action of acetic acid on alcohol. For this purpose equal quanties of alcohol, and of acetic acid from acetite of copper, are mixed and distilled. The alcohol comes over, and it must be poured back, and distilled a second and third time. The product of this third distillation is a mixture of acetic acid and ether. The acid being saturated with potash, and the compound again distilled with a moderate heat, the ether comes over pure.

1560. Bucholz obtained this ether by putting into a retort 16 parts of dry acetate of lead, 6 parts of strong sulphuric acid, and 9 parts of alcohol. Ten parts being distilled over, the product was agitated with a third of its bulk of lime water. This caused the ether to rise to the surface where it could be drawn off.

1561. Scheele obtained acetic ether by dissolving one part of dry acetate of potash in three parts of alcohol, adding more sulphuric acid than was necessary to saturate the potash, and then distilling. Aceticether exhales a perceptible smell of the acetic acid, and probably differs only from the sulphuric ether in containing a portion of acetic acid in its composition. For further information on the subject of ether, &c. formed from vegetable acids, see *Thenard, Mem. d'Arcueil*, ii. 5, or 37 *Phil. Mag.* 216.

1562. *Chloric ether* is directed to be formed by causing a current of olefiant gas and another of chlorine to meet in a glass balloon, by which a condensation of an oily fluid is occasioned, which burns with a green flame, giving out a smell of muriatic acid and much soot. See OLEFIANT GAS and CARBURETED HYDROGEN.

1563. *Hydriodic ether.*—This was first prepared by Gay Lussac by distilling two measures of alcohol with one of concentrated hydriodic acid. This ether is not inflamed by bringing a body in a state of inflammation near it.

1564. *Phosphoric ether* is to be obtained by mixing thick phosphoric acid and alcohol. 'The first product is a portion of unchanged alcohol. After this a liquid passes over which has an ethereal smell and a specific gravity inferior to that of alcohol. It is very volatile, requires for its solution eight or ten parts of water, boils at 100°, and burns with a white flame, without leaving any trace of acid.

1565. *Fluoric and fluoboric* ethers have also been formed, as well as ethers, with the vegetable acids, but these last require the intervention of the mineral acids, so that there is some doubt in respect to their existence as distinct principles. The alkaline, earthy, and metallic substances, which are referred to in the above arrangement, beyond what have been included in the account already given, can scarcely be admitted as proximate principles, since their abstract presence is exceedingly small and often equivocal, as to their constituting essential parts of the substance from which they have been extracted.

PART VI.

ANIMAL SUBSTANCES.

1566. The main difference between animal and vegetable matter, considering the subject in a chemical point of view, and in reference to their elemental condition, consists in the greater proportion of nitrogen or azote which enters into the composition of that class of organised existence which is now to be the subject of consideration. To the three great components of vegetable matter, oxygen, hydrogen, and carbon (says an author whom we have already so freely quoted), a fourth is in animal substances added, and constitutes a large proportion of their structure. To the nitrogen which they contain are owing some of the most important qualities that distinguish this class of compounds. Hence it is that instead of passing through the vinous or acetous fermentations they are peculiarly prone to undergo putrefaction, and that during this change they yield among other products both nitrogen gas and ammonia.

1567. Animal matters, continues this author, such as fibrin, albumen, gelatine, &c. are composed of charcoal, of hydrogen, and of oxygen, in the proportions required to form water; and of hydrogen and azote in the proportions necessary to constitute ammonia. They therefore hold among animal matters the same rank that sugar, gum, lignin, &c. possess among vegetable substances. The animal acids again consist probably of carbon, oxygen, hydrogen, and azote, in such proportions that the oxygen and azote are in excess relatively to the hydrogen; and the animal oils on the other hand will, in all probability, be shown to contain more hydrogen than is sufficient to convert their oxygen into water, and their azote into ammonia. Thus animal substances will be divided into three great classes, relatively to the quantity of hydrogen, oxygen, and azote, which they contain.

1568. In addition to the four elementary bodies, already mentioned, as constituting the main ingredients of animal matter, other elementary substances are found occasionally in small proportions, such as sulphur, phosphorus, iron, and manganese. Some of the salts, as phosphate of lime, occur in large quantities, and others, such as muriate of soda, and potassa, &c. are sparingly diffused through a few only of the animal fluids.

The proximate animal compounds are stated to be as follows:—

Gelatine
Albumen
Mucus
Fibrin
Urea

Saccharine matter
Oil
Resin
Acids.

1569 *Gelatin.*—This substance is yielded by the bones, ligaments, tendons, muscles, skin, hoofs, and most parts of animals. In order to obtain it in purity, it is only necessary to take part of the skin of an ox, and, after the hair is removed, to wash it repeatedly in cold water, until the water comes off colorless. The purified skin being now boiled in pure water, a considerable time, part of it will be dissolved. The solution being then evaporated to a proper consistence, and set aside to cool, becomes solid, and forms the tremulous substance, called jelly. This being allowed to dry slowly, becomes hard, semitransparent, its fracture vitreous, and is what is known under the name of glue.

1570. When pure, gelatine is colorless and semitransparent; hard and brittle. In cold water it swells very much, and becomes again gelatinous, but does not dissolve. If put into hot water, in its soft gelatinous state, it very soon dissolves, forming an opal colored solution, opaque in proportion to the quantity of gelatine. When allowed to cool, the solution resumes its original appearance of tremulous gelatine; and when passing into this state, if agitated in cold water, it becomes completely soluble. When kept dry it remains unchanged; but when dissolved in water it soon putrefies. An acid is evolved, a fetid odor exhaled, and ammonia is formed.

1571. Exposed to heat when dry, it whitens, then blackens, and gradually consumes to a coal. Distilled, it yields a watery liquid impregnated with ammonia, a fetid empyreumatic oil, and leaves a bulky charcoal.

1572. Acids readily dissolve gelatine even when diluted, especially when assisted by heat. When nitric acid is digested upon it, some azotic gas, and then abundance of nitrous gas, are disengaged; the gelatine is dissolved and converted into the oxalic and malic acids, excepting a small quantity of oil which floats on the surface. Muriatic acid forms with glue a brown solution, which gradually lets fall a white powder. This solution precipitates tan from water, and is used as a test to detect the presence of tan, even when combined with an alkali. Sulphuric acid slowly dissolves tan with emission of sulphurous acid. Chlorine gas, when passed through a solution of gelatine, converts it into a white insoluble substance, lighter than and insoluble in water. It is soluble in alkalis, especially with heat, but the solution does not possess the properties of soap.

1573. Several metallic oxides, when agitated in solution of gelatine, combine, and form with it an insoluble compound. Some metallic salts likewise form a precipitate with gelatine. When a solution of tannin is dropped into a solution of gelatine, a copious white precipitate ensues. This soon dries in the open air, forming a brittle substance, unsusceptible of putrefaction, and resisting most of the chemical agents. It resembles over-tanned leather; and it is the combination of tannin with the gelatine in skins that converts them into leather. See TANNING. This precipitate is again soluble in solution of gelatine. The solution of gelatine, or glue, is used to detect tannin in vegetable juices, as the decoction of tannin is used to detect gelatine in animal juices, from the precipitation which ensues when these solutions are mixed. A solution of gelatine so strong that it gelatinises when cold, answers best for throwing down tannin, and the gelatine solution when applied to detect tannin, should be used while hot. When triturated with water and oils, gelatine forms a sort of emulsion.

1574. *Glue* is a species of gelatine which may be made from most parts of animals, but the best is made from parings of hides, pelts from furriers, the hoofs and ears of oxen, sheep, calves, &c. The skins of animals yield the best, and those of old animals yield better glue than those of young. The skins are first cleaned by digestion, in lime-water, then steeped in clean water, and laid in heaps to drain. They are afterwards boiled in copper caldrons, the impurities skimmed from the surface, and a little alum or finely powdered lime thrown in. The liquid is then drained through baskets, allowed to settle; and the clear part being restored to the caldron is boiled and skimmed until it attains the proper consistency. It is then let into large horizontal coolers, where it forms a jelly on cooling. This is cut in slices with spades, which are afterwards cut into thin cakes with wires. These cakes are laid upon coarse horizontal nettings, under an open shed, where they dry by the lateral circulation of air. When glue is soluble in cold water it is not good. But in cold water it swells and becomes gelatinous. Its color is dark brown, with a degree of transparency. It is chiefly used for cementing pieces of wood together.

1575. *Size* is prepared in the same way, but with more care, from the skins of eels, horses, cats, rabbits, from vellum, parchment, and some kinds of white leather. It is transparent, though of inferior strength to glue. It enters into the composition of paper; is employed by the bleachers of linen, to give smoothness and elegance to cloth; likewise by gilders, polishers, and by painters, to give adherence to what are called water, or size colors.

1576. *Isinglass* is an article of food in the countries where it is produced. It is chiefly obtained from the sturgeon, and other large fishes, which abound in the lower parts of the Wolga, and other great rivers which disembogue themselves into the Black and Caspian Seas. Several large fishes in these quarters yield it; but the sturgeon yields the best. It consists of the air-bladder or soom of the fish, which being clean washed, the exterior membrane is removed. The body of the bladder is then cut lengthways, formed into rolls, and dried in the air. Isinglass is more difficult of solution in water than glue. The solution is transparent, and it is used for a great variety of purposes. In this country it is chiefly used for clarifying, or giving transparency to wines, porter, and other fermented liquors. But the way it operates in these cases has not been satisfactorily explained by chemists. An inferior kind of isinglass is prepared by boiling the heads, fins, tails, &c. of fishes without scales such as whales, cuttle fish, sharks, porpoises &c. The boiling liquor must be frequently skimmed, and when properly concentrated it is thrown into flat coolers, where it consolidates.

1577. *Portable Soup* may be regarded as a species of gelatine: it is boiled from the flesh of animals, skimmed, and after attaining the proper consistence, is let into coolers to consolidate. It is then cut into slices and dried like glue. But it is not necessary to be over anxious to separate all foreign ingredients from it, and some salt and spiceries are always mixed with it to prevent its putrefaction, even though it should be exposed to dampness. In fact gelatine is the basis of all soups; and animal jelly forms a pleasant, as well as nutritive, species of food.

1578. Gay Lussac's and Thenard's analysis of gelatine gives—

Carbon . . .	47·881
Oxygen . . .	27·207
Hydrogen . . .	7·914
Azote . . .	16·998
	100·000

See *Hatchett's Observations on Animal Membrane, in Philos. Trans.* 1800.

ALBUMEN.

1579. This is the Latin name for the white of an egg, and it has been extended to all substances possessing similar properties. The whites of eggs form a glary viscid liquid, which is soluble in water, and the solution gives a green color to vegetable blues, in consequence of containing soda. At 165° albumen coagulates into a white mass, which is solid in proportion to the time the heat has been applied. The coagulum is no longer soluble either in hot or in cold water. Acids and alcohol coagulate albumen as well as heat; but if it be sufficiently diluted with water it does not coagulate by these agents. The coagulum is of the same weight, and occupies precisely the same space, with the liquid albumen, and it does not appear that the consolidation is caused either by the emission or absorption of any aerial fluid. Liquid coagulum dries in the air, and forms a transparent varnish, which is used by book-binders. The dried varnish is soluble in water. The acid metallic salts, when dropped into a filtered solution of albumen, occasion precipitates of various colors, the metallic oxides forming insoluble compounds with albumen. The chloride of mercury is a very delicate test of the presence of albumen in animal fluids. Tannin forms with it a yellowish precipitate, which is insoluble in water. When coagulated albumen is dried at 212°, it becomes hard and semitransparent like horn; but becomes again soft and opaque after being digested in water. Mr. Hatchett found that nitric acid converts coagulated albumen into gelatine. Boiling solution of potassa converts albumen into soap. This substance enters largely into the composition of animals, and in their solid parts it is in its coagulated state. Its property of coagulating by heat renders it useful for clarifying liquids. The serum of blood, whites of eggs, or other liquids, containing albumen, are mixed with the liquid to be clarified, and being heated it carries down all the loose particles which were diffused through the liquid.

1580. Albumen is said by Gay Lussac and Thenard, to consist of—

Carbon . . .	52·883
Oxygen . . .	23·872
Hydrogen . . .	7·540
Azote . . .	15·705
	100·000

MUCUS

1581. May be obtained by evaporating saliva, or by macerating oysters in water, and then evaporating to dryness. It is soluble in water, does not coagulate, and in its properties very much resembles the acacia gum. Its ultimate elements have not been ascertained.

FIBRIN.

1582. This substance exists only in the blood and in the muscles of animals. When blood is allowed to settle, a thick red clot forms in it, and falls to the bottom. This clot being separated, put into a linen cloth, and washed until the water comes off without either color or taste, what remains on the cloth is fibrin. Mr. Hatchett having minced some lean beef, during cold weather, steeped it in water during fifteen days, each day changing and squeezing out the water. The shreds of muscle, amounting to about three pounds in weight, were now boiled in six quarts of fresh water during five hours each day, for three weeks, the water being changed and pressed out each day. What remained being dried by the heat of a water-bath, was fibrin nearly pure.

1583. This substance is of a white color, is insoluble in water and alcohol, and has neither taste nor smell. It is not apt to putrefy, even when kept under water. It contracts suddenly by heat, emitting a smell of burning feathers. With a stronger heat it melts, and exposed to destructive distillation it yields water, carbonate of ammonia, a heavy fetid oil, carbonic acid, and carbureted hydrogen gas. A more copious charcoal is left than by gelatine or albumen, which contains phosphates of soda and of lime. Acids dissolve fibrin, and many of its acid solutions are gelatinous. The vegetable acids require to be aided with heat. Weak nitric acid disengages from it much azotic gas. Concentrated potassa and soda, by boiling, convert it into a brown soap, from which muriatic acid precipitates the fibrin in a form resembling tallow. In its properties it seems much to resemble coagulated albumen, with perhaps an excess of carbon. Nitric acid converts both into gelatine.

1584. Analysis of fibrin:—

Carbon . . .	53 360
Oxygen . . .	19·685
Hydrogen . . .	7·021
Azote . . .	19·934
	100·000

UREA

1585. Is obtained by slowly evaporating to the consistence of thick syrup, a quantity of human urine that had been voided several hours after a meal. By cooling it concretes into a crystalline mass; upon which pour, at different times, four times its weight of alcohol, and apply a gentle heat. The urea dissolves in the alcohol, and the solution being separated from the undissolved salts, is put into a retort and distilled with a gentle heat, until it acquires the consistence of thick syrup. The alcohol is now separated, and what remains is urea, which crystallises on cooling in the form of thick plates crossing each other. It is of the consistence of thick honey, of a yellowish-white color, and its smell resembles that of garlic or arsenic. It deliquesces, and is more soluble in water than in alcohol. Nitric acid precipitates from its watery solution a great number of bright pearl-colored crystals, composed of the acid and urea. When heated it melts, swells, and emits a most disagreeable smell. When distilled it yields first benzoic acid, then crystals of carbonate of ammonia, carbureted hydrogen gas, with some prussic acid and oil. There remain charcoal, muriate of ammonia, and of soda. When long boiled in water, which is replaced as it evaporates, urea is also decomposed. A great quantity of carbonate of ammonia separates, acetic acid is formed, and charcoal precipitated. Its solution in water, especially if a little gelatine be added, is subject to a gradual spontaneous decomposition, with disengagement of much ammonia. From the experiments of Fourcroy and Vauquelin, it was inferred that urea was composed of

Oxygen . . .	39·5
Azote . . .	32·5
Carbon . . .	14·7
Hydrogen . . .	13·3
	100·0

1586. Dr. Prout gives the following as the proportion of the elements of purified urea:—

Oxygen . . .	26·66
Nitrogen . . .	46·66
Carbon . . .	19·99
Hydrogen . .	6·66
Deficient . . .	0·03
	100·00

SACCHARINE MATTER.

The saccharine matters, or sugars, found in animals, are

1. Sugar of milk
2. Honey
3. Diabetic urine.

1587. Sugar of milk is obtained by evaporating fresh whey to the consistence of honey, allowing it to concrete by cooling, and then dissolving it in water. The solution being clarified with white of eggs, filtered, and evaporated to the consistence of syrup, it deposits on cooling semi-transparent parallelopiped crystals, which are terminated by four-sided pyramids. These crystals are sugar of milk, which differs in some of its properties from other kinds of sugar.

1588. Honey, according to Cavezzali, is composed of sugar, mucilage, and an acid. To separate the sugar, the honey is melted, and carbonate of lime in powder added as long as effervescence appears; the liquid being frequently skimmed while hot. On cooling it deposits crystals of sugar. It seems doubtful whether honey, which bees collect from vegetables, should be ranked as an animal or vegetable product. Proust thinks there are two kinds of honey, one always liquid, the other solid and not deliquescent, and that they may be separated by alcohol.

1589. *Diabetic sugar* is extracted from the urine of persons who labor under the disease called diabetes. Such urine yields a considerable proportion of sugar, commonly about a twelfth of its weight. Its color, taste, and granulation, are such that it cannot be distinguished from the raw or muscovado sugar of the West Indies. But it is said not to crystallise like common sugar, and hence seems to differ from it in some respects.

1590. Dr. Henry however tells us that he has been able to obtain beautiful white crystals from diabetic sugar, not inferior to those of vegetable sugar. Chevreul also states the same; and Dr. Prout finds its composition precisely the same as vegetable sugar.

OILS.

1591. *Spermaceti or cetine*, which is chiefly extracted from the cranium of the physeter macrocephalus, or spermaceti whale, an animal which abounds in the Southern Ocean. It is separated from a liquid oil by means of a woollen bag, the remainder of which is extracted by an alkaline lee, and the spermaceti is afterwards fused. It forms a beautiful white scaly substance, brittle, with scarcely taste or smell. It makes excellent candles, and is much used in medicine. It melts at 112°, and is said to dissolve caoutchouc when liquid, and that the compound forms an excellent luting for vessels.

1592. *Fat, tallow, suet, hog's lard, butter.*—These differ in some particulars, from each other; but they all seem to be only varieties of the fixed oils. When hog's-lard is distilled it first yields water, then a white oil, with some acetic and sebacic acids. Abundance of the carbureted hydrogen and carbonic acid gases come over with a most offensive smell. When the vessels are unluted the smell is detestable and intolerable. There remains in the retort a black coaly mass. When a little nitric acid is poured upon fat, and a moderate heat applied, it is converted into a yellow ointment, which Fourcroy considers as oxide of fat. This is said to have been successfully employed in France, in external venereal affections.

1593. *Train oil* is extracted from the blubber of the whale and other fishes. The livers of the dog-fish yield a much more pure oil than that obtained from whales. At first it is thick, but after depositing a mucilaginous matter, it becomes transparent, and of a reddish-brown-color. This oil is much used for burning in lamps, and, as it has a disagreeable smell, it may be purified by agitation with a little sulphuric acid, and then mixing it with water. After being allowed to settle, the oil swims on the surface, of a lighter color than before, the water continues milky, and a curdled matter is seen between the water and the oil. The oil being drawn off has no disagreeable smell when burned in lamps.

1594. *The animal oil of Dippel* is a species of volatile and aromatic oil which is obtained by distillation, chiefly from the horns and albumen of animals. The product of the first distillation is mixed with water, and distilled a second time. It changes syrup of violets to green, owing to its containing ammonia. It was formerly much celebrated as a medicine but is now in little repute.

1595. *Adipocire.*—When muscular flesh is confined in a stream of running water it is partly converted into a substance having many of the properties of fat combined with a portion of ammonia, or the effect is more speedily accomplished by digesting mucsle in strong nitric acid. Chevreul has supposed that this change of muscular flesh into what the French chemists have called adipocire, is a mere separation of the oleaginous or fatty matter from the muscular fibre. Dr. Thomson, on the contrary, thinks that new matter is rather formed. This substance has a near resemblance to spermaceti.

1596. Fat has been shown by the experiments of Braconnot and Chevreul to contain two distinct substances, to which they have given the name of Stearine and Elaine, the former solid at the common temperature of the atmosphere, the latter liquid. These separate principles are obtainable by boiling hog's lard in alcohol.

1597. When soap formed of hog's-lard and potassa is put into water, a portion only is dissolved, the remainder consists of white scales composed of the alkali united to a peculiar acid, called by Chevreul margaritic acid, and separable from the above combination by muriatic acid.

1598. The portion of hog's-lard soap which is soluble in water, consists of another acid combined with potassa, this Chevreul has named oleic acid. This acid unites with salifiable bases into oleates.

1599. Berard, by mixing one volume of carbonic acid, with ten of carbureted hydrogen and thirty of hydrogen, and passing the mixture through a red hot porcelain tube, produced a substance in small white crystals, having many of the properties of fat. Dobeirener is said to have obtained the same product by igniting a mixture of coal gas and aqueous vapor.

ANIMAL RESINS.

1600. The principal animal resins are, *Resin of bile.*—This is obtained by pouring one part of concentrated muriatic acid into thirty-two parts of fresh ox bile. After the mixture has settled it is passed through a filter, and the filtered liquor evaporated in a glass vessel with a moderate heat. After it is sufficiently concentrated, a green substance falls down. The liquid part being poured off, and the precipitate washed with water, it is resin of bile. It is of a dark brown color, but when spread upon wood or paper, is of a fine grass green, and, mixed with essential oil, might form a beautiful green varnish. It is of a very bitter taste; is soluble in water and alcohol, and alkalis form it into a soap. When treated with chlorine, it loses its green color, and is converted into a substance resembling tallow. Ear-wax also contains a resin, which has not been particularly examined, as nature only furnishes this substance in small quantity. It is abhorred by insects, and placed as a sentinel to defend the drum of the ear against their attacks.

1601. *Ambergris* is now generally understood to be a concretion formed in the stomach of the spermaceti whale. It is often found floating on the coasts of India, Africa, and Brasil, in small pieces; but sometimes in masses of fifty or 100 lbs. Great quantities of it have been occasionally found upon the shores of some of the Hebridian isles, where the floating productions of the torrid zone are often conveyed by currents in the ocean, and the people not knowing its value, used it for rush-lights.—It is of an ash-gray color, with white and brownish-yellow streaks. It has no taste, but an agreeable smell, which improves by keeping. It melts at 122°, and rises in vapor at 212°. Distilled it yelds a white acid liquor, and a light volatile oil; while a bulky charcoal remains behind. It is insoluble in water, but soluble in ether and alcohol. It is soluble in nitric acid, and in the alkalis, which convert it into soap.—According to Bouillon La Grange, 100 parts of ambergris are composed of

52·7	adipocire
30·8	resin
11·1	benzoic acid
5·4	charcoal
100·0	

1602. Pelletier and Caventon consider ambergris not an animal resin, but as consisting chiefly of a substance similar to that found by Chevreul in biliary calculi, and called by him cholesterine. They have called the principle ambreine. It is said not to be convertible into soap, but to yield an acid to which the name ambreic acid has been given.

1603. Castor is obtained from two bags situated in the inguen of the beaver, the smallest bag yielding the best. It has been much used in medicine. According to Bouillon La Grange it is composed of

1. Carbonate of potassa
2. Carbonate of lime
3. Carbonate of ammonia
4. Iron
5. Resin, similar to that in bile
6. Extractive mucilage
7. Volatile oil.

1604. *Civet* is obtained from the inguen of the civet cat. In color and consistence it resembles butter. Its smell is so strong that it is insufferable unless it be diminished by mixture with other bodies. It is used as a perfume. It combines with oils, but not with alcohol.

1605. *Musk* is obtained from the quadruped called moschus moschiferus. It conveys its smell to water, and is soluble in alcohol, but the combination has not the smell of musk. The same is the case with its solutions in the nitric and sulphuric acids. This substance is also used as a perfume.

1606. *Animal acids* have been enumerated as follow :—

Phosphoric
Sulphuric
Muriatic
Carbonic
Benzoic
Acetic
Malic
Oxalic
Hydrocyanic

Lithic or Uric
Pyro Uric
Purpuric
Rosacic
Amniotic
Lactic
Saclactic
Sebacic
Formic.

Thefirst nine of these have been subjects of disquisition in former parts of the present treatise, and it only remains for us to treat of the others in the present place.

1607. *The uric acid, or lithic*, exists pretty abundantly in the urine, even in its healthy state, but it is combined generally with ammonia; it constitutes one of the most common ingredients of urinary calculi, and the red gravel which is occasionally discharged with the urine is composed principally of this acid.

1608. When the uric acid is pure it is nearly colorless and without smell; it reddens infusion of litmus, is readily soluble in caustic potassa, but not soluble in the carbonate of that alkali. Its combination with soda constitutes the principal portion of those concretions which are formed in gouty individuals, and called chalk stones. It dissolves in nitric acid, and when the solution is evaporated, a residuum is obtained which has a fine red or carmine color, and which Dr. Prout has lately shown possesses distinct acid properties: he has named it purpuric acid, and of this acid he gives the following components:—

Carbon	27·17
Oxygen	36·36
Hydrogen . . .	4·54
Azote	31·81
	99·88.

1609. *Pyro-uric acid.*—When uric acid is distilled, per se, a yellow sublimate arises; this dissolved in water, and subacetate of lead added to it, gives a white precipitate, which washed with water, and decomposed by sulphureted hydrogen, yields the acid in question. This acid, when passed through a red hot glass tube, is decomposed and converted into the common products of animal matter.

1610. *Rosacic acid.*—This differs but little from the uric acid, sulphuric and nitric acids operating nearly the same effects upon it as upon the uric acid.

1611. *Amniotic acid.*—This was detected by Fourcroy and Vauquelin in the liquor of the amnios of the cow. It forms white crystals by slow evaporation, which have acid properties. It does not, however, decompose alkaline carbonates, nor does it throw down salts with earthy bases.—If treated with a strong heat it is decomposed, emits ammonia and prussic acid, and leaves a large quantity of charcoal.

1612. *Lactic acid* forms a component of sour milk; and from this it may be obtained by evaporating it gently to about one-eighth, filtering and adding lime water; by which a lactate of lime is formed, and from which oxalic acid will separate the lactic.

1613. This acid in its properties nearly resembles the acetic. Fourcroy, indeed, supposed it to be merely that acid with some of the components of the milk; but Berzelius contends for its distinct essential existence, and supposes it to exist in all animal fluids, either in a free state or in combination with soda.

1614. *Saclactic acid* may be formed by digesting sugar of milk with nitric acid, diluting the liquid with water, and thereby preventing crystals of oxalic acid from being formed, and producing a white sediment, which is the acid in question. The same substance is procurable by treating powder of gum arabic with nitric acid. This acid reddens the color of litmus, and at a boiling heat effervesces with the alkaline carbonates. It forms also saclactates with several bases.

1615. *Sebacic acid.*—The acid which is obtained by adding finely powdered quicklime to melted fat, and disengaged by adding sulphuric acid, has been supposed by some to be a distinct acid; but Thenard has contended that it is merely acetic acid with a little admixture of sulphurous. Besides this, however, we are told 'a different acid may be procured by first distilling hog's lard, and washing the product with hot water. The watery solution, poured into one of acetate of lead, gives a flaky precipitate, which is to be heated along with sulphuric acid in a retort. No acid is distilled over, but, on the surface of the matter in the retort, there floats a substance resembling fat, which may be separated and washed with boiling water. The water entirely dissolves it, and becomes concrete on cooling.'

1616.—This acid has great resemblance to the benzoic, which indeed Berzelius considers it to be, 'impregnated with other products of the distillation by which it has been obtained,' and it is extremely probable, says Dr. Henry, that his opinion is well founded.

1617. *A zoomic acid* has been described, but Thenard has proved this to be merely the acetous, holding some animal matter in solution.

1618. *Formic acid (acid of ants).*—It has been alleged also that this is merely disguised acetic acid, or rather a mixture of acetic and malic acid. It is, however, considered by Berzelius and others to be a peculiar acid; it approaches very nearly to the oxalic, and is said only to differ from it one proportional of hydrogen additional to the carbon and oxygen.

PARTS OF ANIMALS.

1619. The parts of which animals are composed are divided into solid and fluid. The solid parts are

1. Bones, shells, crusts,
2. Horns, nails, scales,
3. Muscles,
4. Skin,
5. Membranes,
6. Tendons and ligaments,
7. Glands,
8. Brain and nerves,
9. Hair and feathers,
10. Silk, &c.

BONES, SHELLS, CRUSTS.

1620. The bones of animals are their most solid parts, and they are generally concealed from view. When bones are reduced to small pieces, and sufficiently boiled in water, they yield a portion of fat, which swims on the surface, and of gelatine which remains dissolved in the water, but when sufficiently concentrated it consolidates on cooling. Hence bones, when reduced to powder, and boiled, yield excellent soup. If an entire bone have its fat and gelatine removed by boiling, and be afterwards steeped in a diluted acid, the earthy basis of the bone is withdrawn, and there remains a soft white elastic substance, of the figure of the bone, which has obtained the name of cartilage. Mr. Hatchett has shown that this substance possesses all the properties of coagulated albumen. This cartilage is the first part of the bone that is formed, and hence bones are at first soft and flexible, and the earthy salts which give them hardness are deposited afterwards. Gelatine and fat convey toughness and strength to bones, and without them, especially the first, they are extremely brittle. The earthy salts which convey hardness and solidity to bones, are, 1. Phosphate of lime, which is by far the most abundant. 2. Carbonate of lime. 3. Phosphate of magnesia, in the bones of inferior animals. 4. Sulphate of lime, detected by Mr. Hatchett in very minute proportion.—The following is the analysis of ox bones by Fourcroy and Vauquelin.

Solid gelatine	51
Phosphate of lime	37·7
Carbonate of lime	10
Phosphate of magnesia	1·3
	100·0

The enamel of the teeth contains no cartilage, and, according to Fourcroy and Vauquelin, is composed of.

Phosphate of lime	72·9
Gelatine and water	27·1
	100·0

But according to Mr. Pepys, and Hatchett, it is composed of

Phosphate of lime	78
Carbonate of lime	6
Loss and water	16
	100

Mr. Hatchett found some fossil bones from the rock of Gibraltar to consist of phosphate of lime, with carbonate of lime in the interstices. Hence they resemble bones that have been burnt.

1620*. *Shells* are the bones or covering of a great variety of fishes. Shells consist chiefly of carbonate of lime united to a soft animal matter. The carbonate of lime predominating in shells distinguishes them from bones, in which phosphate of lime predominates. Shells are divided into two genera, the porcellanous, and mother-of-pearl. The porcellanous, such as veluta, cyprea, &c. are compact, and break like porcelain; and consist of carbonate of lime united to a soft animal matter. The mother-of-pearl shells, such as the fresh water muscle, the haliotis iris, the turbo olearius, &c. consist of alternate layers of carbonate of lime and fine membranes composed of coagulated albumen. Acids extract the carbonate of lime, leaving the membranes, and the form of the shell entire. The oyster shell contains a very small proportion of the albuminous membrane, while the real mother-of-pearl shell contains, according to Mr. Hatchett, to whom we have been under so many obligations, *

Carbonate of lime	66
Membrane	34
	100

Pearl is a globular concretion often formed in these shells. It is a beautiful bluish-white color and is composed of alternate and concentric coat of membrane and carbonate of lime. Its lamella structure renders it iridescent.

1621. *Crusts* are the external covering of crabs, lobsters, prawns, cray-fish, echini, and various similar fishes. From Mr. Hatchett's experiments they seem to be intermediate between bones and shells. They agree with bones in containing phosphate of lime, and they agree with shells in the predominance of carbonate of lime. They also contain cartilage, possessing the properties of coagulated albumen.—From lobster crus Merat-Guillet obtained

Carbonate of lime	60
Phosphate of lime	14
Cartilage	26
	100

From crust of cray fish

Carbonate of lime	60
Phosphate of lime	12
Cartilage	28
	100

From shells of hens' eggs

Carbonate of lime	89·6
Phosphate of lime	5·7
Animal matter	4·7
	100 0

Horns, Nails, Scales.

1622. These substances are flexible, elastic, and soften by heat, which is not the case with those just described. Horns may be cut with a knife, or rasped with a file; but are so tough that they cannot be pounded. When heated they become soft and pliable, and may be formed into almost any shape. When formed into thin plates, they possess a degree of transparency, and are often used instead of glass for windows and lanterns. When strongly heated in a Papin's digester they are said to be converted into a substance resembling gelatine. Mr. Hatchett burnt 500 grains of ox horn. The residuum was only 1·5 grains, not one-half of which was phosphate of lime. Hence horns contain very little earthy matter. They seem to consist chiefly of coagulated albumen, and probably also of gelatine. The only exception is the horn of the hart and buck, which seem intermediate between bone and horn.—The hoofs, talons, and claws of animals seem to be the same with horns. To the same class may also be referred the bills of birds, the weapons of the sword and saw-fish, though many of these seem much harder than horns. They all agree in uniting a fibrous with a lamellated, or membranous texture.

1623. *Nails* defend the extremities of the fingers, are attached to the epidermis, and come off along with it. Water softens, but concentrated acids and alkalis dissolve and decompose them. Mr. Hatchett ascertained that they con sist of coagulated albumen, and a small proportion of phosphate of lime. Tortoise shell seems to approach to the nature of nail. When burnt, 500 grains of it yield three of earthy matter, consisting chiefly of phosphate of lime and soda, with a little iron.

1624. *Scales* are of two kinds. Those of serpents and other amphibious animals, bear a striking resemblance to horn; while those of fishes resemble mother-of-pearl. The crusts which cover certain insects seem to resemble the scales of serpents.

MUSCLES.

1625. Muscles consist of bundles of fibres, which may be subdivided into smaller fibres; and the minutest fibre, until it ceases to be seen by the best microscope, is always invested with a coating of cellular substance, or fat. As the muscles are the moving powers of the animal frame, the intention of this fat is to prevent the friction of the muscular fibres upon each other, which would instantly prove fatal to the animal. When a piece of flesh is minced down, and treated as was explained when discussing fibrin, the muscle is converted into a white fibrous substance, composed chiefly of fibrin. Its other ingredients are

1. Albumen,
2. Gelatine,
3. Extractive,
4. Phosphate of soda,
5. Phosphate of ammonia,
6. Phosphate and carbonate of lime.

It is obvious that when meat is boiled, the gelatine, the extractive, and some of the salts will be dissolved in the water; and from these the nourishment and flavor of soups are partly derived. When meat is roasted, these substances continue in it; and hence the superior flavor of roasted meat. But much of the nourishment of roasted meat is expelled by excessive heat; and the most economical mode of dressing meat is by long and slow boiling.

SKIN.

1626. This is a coating which covers all animals excepting those which are covered with shells, and it has properties in common with the bark of trees. It consists of three membranes.

1627. The *epidermis* may be separated by steeping in hot water. It is elastic, and insoluble in water and alcohol, but soluble in alkalis and lime. It is tinged yellow by nitric acid, which volatile alkali changes to a deep orange color. The epidermis seems to be a particular modification of coagulated albumen.

1628. The *rete mucosum* is a very thin membrane below the epidermis, in which the color of the skin resides. The negroes acquire their blackness from a pigment lodged in this membrane. If a negro keep his hand or foot some time in water impregnated with chlorine, it becomes nearly white; but the former color afterwards returns. The composition of this membrane is not known, as its quantity is very small.

1629. The *cutis*, or real skin, is a thick dense membrane, composed of fibres interwoven similar to those of a hat. It consists chiefly of gelatine so compact as to resist the action of cold water; but when long boiled in water it dissolves and forms glue. Those skins make the best glue which are of most difficult solution in boiling water.—To form skins into leather, they are first steeped in lime and water, and the hair and cuticle scraped off. They are then well washed in water. To make sole leather, the thickest and strongest skins are steeped in saturated infusion of bark; or the skins and bruised bark are placed in alternate layers, and as much water added as covers them. The skins are afterwards steeped in water slightly impregnated with sulphuric acid, or in the acid obtained from the fermentation of barley or rye, which Sir H. Davy thinks produces a triple compound of skin, tan, and acid. Oak bark contains tannin and extractive, and, when a strong infusion of it is made, the tannin superabounds. This renders the skin hard, but apt to crack, and a different process is adopted for making pliable leather. For this purpose the thin skins of cows, calves, &c. are first steeped some days in a lixivium of pigeon's dung, which renders them thinner and softer. They are then steeped at first in weak infusions of oak bark, and are gradually removed to those which are stronger and stronger until they be completely impregnated; which takes from two to four months. From this process they imbibe a greater proportion of extractive than the sole leather, and are thus rendered pliable and tough. Sir H. Davy found that skins whilst tanning absorb about one-third of their weight of vegetable matter. The tannin combines with the gelatine in the skin, renders it insoluble in water, and not disposed to putrefy. He found also that skins absorb the whole vegetable matter from infusion of bark, leaving nothing but pure water.

MEMBRANES, TENDONS, LIGAMENTS, GLANDS.

1630. *Membranes* are thin, semitransparent substances, which envelope the viscera, and other parts of the body, such as the dura and pia mater, the pleura, the peritoneum, the periosteum, &c. They also form reservoirs for the reception of juices which are to be afterwards discharged, of which we have examples in the gall and urinary bladders. Though little is known of their chemical composition, they seem to be perfectly analogous to skin. A bladder being tanned is converted into leather.

1631. *Tendons* are strong pearl colored bodies, in which the muscles terminate, and by which they are inserted into the bones. By long boiling they are converted into gelatine, and seem to be of the same nature with skin.

1632. *Ligaments* bind the bones together at the joints. When long boiled they yield a portion of gelatine; but the remainder resists the action of boiling water, and seems to consist of coagulated albumen.

1633. *Glands* operate in forming or in altering different liquids. They are divided into conglobate, which are small, and situated in the course of the lymphatics, and conglomerate, such as the liver, kidneys, &c. Of their chemical composition nothing is known.

BRAIN AND NERVES.

1634. The substance composing these organs seems to be quite peculiar, and to be constituted of a fatty matter, which has been named by Thenard, osmazome; this matter upon its cooling after solution in heated alcohol, deposits itself in scales. In many respects it appears analogous to the principle called cholesterine.

HAIR, WOOL, FEATHERS.

1635. Hair and wool grow on various parts of animals, and are intended to defend them from the cold. Their surfaces are not smooth, but covered with scales consisting of imbricated cones, which give them a rough feel, occasion them to entangle and have given rise to the processes of felting and fulling. When hair is long boiled in water it yields gelatine, to which it owes its flexibility and toughness. What remains is brittle, and seems to consist of coagulated albumen. The softest hair yields gelatine most readily. Vauquelin dissolved human hair of various colors in water in a Papin's digester. If the heat was too great it was decomposed, and ammonia, carbonic acid, and empyreumatic oil formed. After being dissolved it slowly deposited a bituminous oil, which was black when black hair, and yellowish-red when red hair was employed. It would seem that the color of hair is owing to an oil. When the oil is separated by filtration, the solution is nearly colorless, and infusion of nutgalls, and chlorine, occasion copious precipitates in it. But though it be much reduced by evaporation, it does not gelatinise. The alkaline lixivia readily dissolve hair, and hence wool was proposed by Chaptal as a substitute for oil in the composition of soap. The sulphuric, muriatic, and nitric acids dissolve hair, with a separation of oil. Alcohol digested on hair separates two kinds of oil, the first white, the second of the color of the hair. When hair is burnt to ashes, it yields iron and manganese, phosphate, sulphate, and carbonate of lime, muriate of soda, and a considerable portion of silica. The ashes of white hair contain least iron, but some magnesia, which is wanting in hair of other colors. From the experiments of Vauquelin it appears that black hair is composed of the following substances:

1. Animal matter, constituting the greatest part
2. White solid oil, in small quantity
3. Grayish-green oil, more abundant
4. Iron
5. Oxide of manganese
6. Phosphate of lime
7. Carbonate of lime, very scanty
8. Silica
9. Sulphur.

Vauquelin considers the animal matter to be chiefly a variety of inspissated mucus, but its precipitation by tannin seems to contradict that opinion. Mr. Hatchett thinks the quills of feathers consist chiefly of coagulated albumen, and their other parts to be nearly of the same composition with hair, though when boiled they yield no gelatine. Dr. Ure states the ultimate analysis of wool to give the following:

Carbon . . .	55·00
Oxygen . . .	29·40
Hydrogen . .	2·80
Azote . . .	12·80
	100·00

SILK.

1636. The silk-worm is a native of China, and there the preparation and manufacture of silk have been known from the remotest times. It was first brought to Rome in the time of Augustus, and it continued to be carried over land, and sold to the luxurious Romans for its weight in gold. In 555 two Persian monks brought some eggs of the insect to Constantinople, concealed in the hollow of a cane. Being carefully propagated, the manufacture of silk soon extended itself in Greece. In 1130 Roger King of Sicily forcibly carried off silk weavers from Greece, and settled them in Sicily, from which the manufacture extended into Italy, and afterwards into France. The revocation of the Edict of Nantes extended the silk manufacture into Britain.

1637. Silk is produced by various species of the caterpillar. The phalæna bombyx is commonly propagated in Europe; but the phalæna atlas yields a greater quantity. The insects feed on the leaves of the white mulberry tree. It is protruded from two small bags, in fine threads, formed into the shape of a clue, to cover the insects in their crysalis state. The threads and webs of spiders are of the same nature with silk, and Reaumur ascertained that the threads of the larger spiders were neither inferior in beauty nor strength to those of the silk-worm. Attempts were made to establish manufactories of this kind of silk, but the spiders attacked and destroyed each other.

1638. Raw silk varies in color from white to a reddish-yellow. The surface of its fine threads is covered with a varnish, which may be extracted by boiling in water, or by soap, when it assumes a fine white color. This varnish seems to be intermediate between gum and gelatine. It agrees with gum in not being acted on by alcohol, and with gelatine in being precipitated from water by tannin. When the water is evaporated this varnish is obtained of a black color, brittle, and of a shining fracture, and its weight is nearly one third of that of the raw silk from which it was extracted. Its soapy solution soon putrefies. Yellow silk contains a resin, which is soluble in alcohol, or in a mixture of alcohol, with muriatic acid, and when deprived of it, the silk acquires a fine white color.

1639. Silk itself is not soluble in water or alcohol, and is not very combustible, though fire blackens and decomposes it. Distilled it yields a very great proportion of ammonia. Heated alkalis dissolve, and convert it into soap. The sulphuric, muriatic, and nitric acids also dissolve it; the latter with evolution of oxalic acid, and a fatty matter which swims on the surface. When kept in a damp place, it rots sooner or later; but Dr. Wilson of Falkirk found a riband wrapped round the bone of an arm, which had lain more than eight years in the church-yard of that town. The body of the deceased had mouldered into earth, leaving nothing but the bones. This shows that silk is capable of resisting putrefaction, when not exposed to the action of the air. Dr. Ure obtained the following results from the bleached fibres of silk:

Carbon	50·8
Oxygen	34·0
Hydrogen	3·4
Nitrogen	11·8
	100·0

Cadet analysed spiders' webs, which seem to be nearly allied to silk, by treating them with water, alcohol, and incineration, and obtained the following products. 1. Brown extract soluble in water, and not altered by exposure to the air. 2. Resinous matter, soluble in alcohol. 3. Alumina. 4. Sulphate of lime. 5. Carbonate of soda. 6. Muriate of soda. 7. Carbonate of lime. 8. Iron. 9. Silica.

1640. We now proceed to the consideration of the fluid parts of an animal. The fluid parts of animals are the blood, which is the great reservoir from which all the other fluid as well as solid parts of animals are extracted. The other fluid parts are called secretions, because they are secreted from the blood. The morbid concretions which are formed in various parts of the body, and the morbid fluids, shall be afterwards considered. At present we only consider those solid and fluid parts of animals which are formed while they are in a healthy state. These fluids may be reduced to the following:

BLOOD.

Secretions.

1. Milk
2. Eggs
3. Saliva
4. Pancreatic juice
5. Bile
6. Cerumen
7. Tears
8. Liquor of the pericardium
9. Humors of the eye
10. Mucus of the nose, &c.
11. Synovia
12. Semen
13. Liquor of the amnios
14. Animal poisons.

Some fluids are secreted from the blood, and afterwards ejected from the body. These are called excretions, the principal of which are

15. Urine
16. Feces.

1641. When blood is drawn from an animal, it gradually separates into two parts. One of these remains liquid, and has the color, and nearly the consistence of fresh whey, and is hence called serum. The other from its red color, being supposed to carry all the essence of the blood along with it, has obtained the name of cruor. The cruor has the consistency of curds when immediately precipitated from milk; and hence the older physicians distinguished the ingredients into which blood voluntarily separated by terms which denoted what took place in milk; that is into curds and whey. This separation takes place though the blood be kept at the same temperature which it had in the body of the animal; though it should be mixed with water, or be placed in vacuo. Though we are entirely ignorant of what takes place in the bodies of animals, it seems to follow, from these facts, that the decomposition of blood, in animals, is prevented by the peculiar powers of life which pervade all parts of the system, and by the muscular power of the heart and arteries. But we have two substances in blood which deserve attention; the serum and the cruor.

1642. The serum of blood is of a light greenish-yellow color, and converts syrup of violets to a green, owing to soda dissolved in it. At the temperature of 156° it coagulates, and also when boiling water is mixed with it. But if previously mixed with six parts of cold water, it does not coagulate by heat. The coagulum resembles the boiled white of an egg; and, if cut into small pieces, a muddy fluid, termed serosity, may be squeezed from it. If the residuum, after this fluid is separated, be washed in boiling water, it is found to possess all the properties of coagulated albumen. The serum also contains gelatine, for if mixed with six times its weight of water, and boiled to coagulate the albumen, gelatine remains in the liquor, which may be obtained by concentration, and setting it to cool. Proust ascertained that it contains sulphur, combined with ammonia in the state of hydro-sulphuret. Besides albumen, gelatine, hydro-sulphuret of ammonia, it also contains soda in a caustic state, apparently combined with gelatine and albumen: muriate of soda, phosphate of soda, and phosphate of lime.

1643. Cruor, or the clot as it is often called, is of a red color and considerable consistence. If thrown upon a sieve, and washed with a small jet of water falling upon it, the coloring matter is carried through, and there remains upon the sieve a white elastic substance which has all the properties of fibrin. What passes through the sieve is of a red color, and, if slowly evaporated to dryness, is found to consist of albumen and iron, part of which may be separated from it by the magnet. Neither the serum nor fibrin have been found to contain any iron. Fourcroy and Vauquelin have supposed that the iron exists in the blood in the state of sub-phosphate of iron.

1644. When new drawn blood is well stirred with a stick, the fibrin collects upon it, and may thus be removed. What remains no longer coagulates unless exposed to heat. When blood is slowly evaporated to dryness, and then subjected to destructive distillation, new compounds are formed which did not previously exist; and this takes place with regard to many animal and vegetable substances. The following ingredients have been detected in its composition

1. Water
2. Fibrin
3. Albumen
4. Gelatine
5. Hydro-sulphate of ammonia
6. Soda
7. Sub-phosphate of iron
8. Muriate of soda
9. Phosphate of soda
10. Phosphate of lime
11. Benzoic acid, detected by Proust.

1645. Berzelius finds the crassamentum of the blood to consist of

Coloring matter	64
Albumen and Fibrin	36
	100

The coloring matter when incinerated affords a residue consisting of

Oxide of iron	50·0
Subphosphate of iron	7·5
Phosphate of lime with magnesia	6·0
Lime	20·0
Carbonic acid and loss	16·5
	100·0

1646. When blood is drawn from an individual in some circumstances of diseased action, fibrin collects on its surface, forming the buffy coat.

1647. By Berzelius, the red color of the blood is supposed to be dependent upon the iron which enters its composition, but Brande and Vauquelin consider its color referrible to a peculiar animal principle, independently of the presence of iron.

SECRETIONS.

MILK.

1648. Milk is secreted from the blood by that class of animals which has obtained the name of mammalia, and is intended for the nourishment of their offspring. The milk chiefly used by man as an article of food is that of the cow. It is a white opaque fluid, of an agreeable sweetish taste, and reddens vegetable blues. It is heavier than water, and lighter than blood; but its specific gravity varies at different times. It boils nearly at the same temperature with water.

1649. When allowed to remain some time at rest, it throws up a yellowish colored substance to its surface, known by the name of cream. The remaining milk is much thinner than it was before, and is of a bluish-white color. If it be heated to 100° and have a little rennet, formed by digesting water on the inner coat of a calf's stomach and preserved with salt, well mixed with it, the milk coagulates. It also coagulates when treated with alcohol, with acids, with infusion of the flowers of artichoke and of the thistle, and a variety of other plants. It also coagulates if as much of any neutral salt as it can dissolve be added to it while boiling; or gum-arabic, or sugar. If the coagulum be broken, it soon separates into a white solid part called curd, and a greenish liquid part called whey. Thus milk may be separated into three parts, cream, curd, and whey. See BUTTER, MANUFACTURE OF.

1650. Cream is of a yellow color, and gradually becomes thick by exposure to the atmosphere. If placed in a vessel of no great depth, it soon becomes solid; mucus and byssi form upon its surface, and it no longer retains the properties of cream, but of a very fat cheese. In this way cream cheeses are made in this country. Thus cream contains a peculiar oil, curd, and some serum The oil is separated from it by the process of churning, which divides cream into two parts, the one solid called butter, the other fluid, which resembles creamed milk.

1651. Butter is of a yellow color, melts at 96° and becomes transparent. If kept melted for some time, it deposits curd and whey, and assumes the appearance of an oil, but loses its peculiar flavor. If kept some time it becomes rancid; but if it be well washed, and sufficiently purged of these foreign ingredients, it remains sweet much longer that when this precaution is not adopted. Distilled, it yields water, an acid, an oil at first fluid, and afterwards concrete. A small quantity of charcoal remains in the retort.

1652. When cream is churned it is commonly kept some time until it becomes sour. Fresh cream requires at least four times as much churning to make it yield butter, as sour cream does. Milk warm from the cow yields more butter than can be obtained from the cream it throws up; but it requires proportionally more churning than the cream, especially if the latter be previously soured. When very sour cream is churned, the butter milk that is left is not nearly so sour as the cream had been; though the butter remains perfectly sweet. This shows that the acid which had been formed in the cream is partly decomposed during the churning. Young and Thenard have shown that sour cream may be churned, and butter obtained, although atmospheric air be excluded. But in the Agricultural Survey of Mid-Lothian, an experiment on churning is recorded which was conducted by Messrs. Robertson and Headrick. They operated on milk fresh drawn from the cow; and it appeared that atmospheric air constantly entered into, and combined with the milk during the whole process. The butter was perfectly sweet, and the milk acquired that degree of acidity which distinguishes new churned milk. We are therefore inclined to think that the oil in milk, like other vegetable oils, is originally in a liquid state; but that it consolidates into butter in consequence of absorbing oxygen, either from an acid previously formed in the cream, or formed by agitating the liquid in contact with air during the process of churning. Carbonic acid gas is sometimes extricated during churning, and the temperature generally increases about four degrees. Butter may be churned from whey after the curd is extracted from it; some persons are in the practice of gradually heating whey to about 150° when it throws up its cream. This, being skimmed off, is churned into butter.

1653. Curd may be separated from creamed milk, or from butter milk, by the addition of rennet. It is white and solid, and possesses many of the properties of coagulated albumen. When the moisture is squeezed out, it becomes hard and brittle. It is soluble in water, but readily combines with pure alkalis, especially when assisted by heat. With fixed alkalis much ammonia is evolved, and, if the heat be strong, charcoal is deposited. When precipitated by an acid, it is of a black color, melts like tallow, and never acquires the consistence of curd. Hence alkalis appear to decompose curd, and to convert it into ammonia and oil, or rather fat. The mineral acids, when much diluted, dissolve fresh undried curd, when assisted by heat. The vegetable acids only dissolve it when they are concentrated.

1654. Curd is the basis of cheese, and the best cheese is that from which as little as possible of the cream is abstracted. For this reason it should be subjected to as little pressure as possible in abstracting the whey. For this purpose it is first cut in various directions with a wooden knife, and the whey which spontaneously separates is laved off. When the curd has acquired a firm consistence, it is repeatedly cut into small fragments by a four-edged knife, and thrown into a drainer. It is then repeatedly cut in the same manner, and subjected to a gentle pressure in the cheslet. By this process the oil in the curd attracts oxygen, and is converted into butter, which remains in union with the curd. The last portions of the whey are expelled by subjecting the cheese to violent pressure. If the soft curd be subjected to violent pressure, much of the cream goes off with the whey. Cheese of this sort melts when exposed to heat; but cheese from skimmed milk, or from butter-milk, dries and shrivels up like horn. Much of the cream is also expelled by overheating the milk before the rennet is applied. The heat should not exceed 100°.

1655. Whey contains a portion of curd, which may be separated by filtration or by boiling. In the latter case the curd rises and forms a thick scum on the surface, which may be skimmed off, and is called in the north float whey. Fresh whey is of a yellowish-green color, and of an agreeable sweet taste. But after the curd is carefully skimmed, and is allowed to settle some hours, it may be decanted off colorless like water. If this liquid be slowly evaporated, it deposits at last white crystals, which are sugar of milk. Whey also contains acetic acid, and hence reddens vegetable blues. It also contains some muriate of potassa and of soda. Fourcroy and Vauquelin discovered in it some phosphate of magnesia and of iron, sulphate of potassa, and a peculiar extractive matter.

1656. Milk is capable of undergoing the vinous fermentation spontaneously, and then yields alcohol by distillation. Before this takes place it must previously become sour, and then be placed in the proper temperature. In this way the Tartars obtain a vinous liquor from mare's milk, to which they give the name of koumiss. The inhabitants of Orkney and Shetland prepare a vinous liquor from cow's milk by a process nearly similar.

1657. When milk is distilled there first comes over water containing animal matter, which soon putrefies. After being concentrated the milk coagulates, like albumen, into a thick unctuous yellowish-white substance. By increasing the heat this substance yields a transparent liquid, which becomes gradually colored; some very fluid oil, then ammonia, an acid, and lastly a very thick black oil. At the same time carbureted hydrogen gas is emitted. There remains a coal, which contains carbonate and muriate of potash, phosphate of lime, and sometimes magnesia, iron, and muriate of soda. The contents of cows' milk have been given as follow:—

1. Water
2. Oil
3. Curd
4. Extractive
5. Sugar of milk
6. Acetic acid
7. Muriate of soda
8. Muriate of potassa
9. Sulphate of potassa
10. Phosphate of lime
11. Phosphate of magnesia
12. Phosphate of iron.

1658. Berzelius has recently stated the following to be the constituents of skimmed cows' milk:—

Water	928·75
Cheese with a trace of butter	28·00
Sugar of milk	35·00
Muriate of potassa	1·70
Phosphate of potassa	0·25
Lactic acid, lactate of potassa, and a trace of lactate of iron	6·00
Earthy phosphates	0·30
	1000·00

Cream consists of

Butter	4·5
Cheese	3·5
Whey	92·0
	100·0

1659. Women's milk contains much more sugar than cows' milk. It throws up abundance of white cream, and when this is separated, it becomes very thin, and of a bluish-white color. Women's milk has not been coagulated except by boiling; nor can the cream be formed into butter by churning. Asses' milk very much resembles women's milk. Goats' milk differs little from cow's milk, except in containing less cream and more curd. It derives a peculiar flavor from the wild herbs on which the animals feed. Ewes' milk is thicker than cows' milk, and makes a pungent species of cheese. Mares' milk is thicker than women's milk, and contains more curd, but not so much as the milk of the cow. All these milks contain nearly the same ingredients, though their proportions vary considerably; and those of cows' milk vary with their food, and at different seasons of the year.

EGGS.

1660. Dr. Prout has lately examined with attention the nature and composition of eggs in the progress of incubation. Eggs lose a little of their weight by being boiled, and the water becomes impregnated with about 0·3 grains of saline matter from an egg of common size. This saline fluid is found on evaporation to be strongly alkaline, and to contain also animal matter, sulphuric and phosphoric acids, chlorine, lime, magnesia, and carbonates of those earths, all of which substances exist both in the white and the yolk.

1661. The shell contains about two per cent. of animal matter, with one per cent. of phosphates of lime and magnesia, the rest being carbonate of lime with a little carbonate of magnesia. Vauquelin also found in the burnt shells traces of iron and sulphur.

1662. The yolk of the egg, besides the more common ingredients of animal fluids, contains a considerable portion of uncombined phosphorus, which, when the dried yolk is burnt, forms a glassy coating of phosphoric acid, that effectually defends the charcoal from combustion. In the white of an egg, which, as has been sts chiefly of albumen, sul- state. In one instance the 5·5 grains, contained 179·2 en, and 91 yellow oil. But varied in different instances. *osophical Transactions*, 1818.

SALIVA

ıg to the most recent analysis of s of

. . . .	992·9
animal matter . .	2·9
. . . .	1·4
ıuriates . . .	1·7
soda and animal matter	0 9
ı	0 2
	1000·0

ıas found albumen, though not in- ommon tests, still to be indicated by ncy. He supposes that it exists in ined with soda.

BILE

. secreted by the glandular substance liver, and is collected in a reservoir, led for use, called the gall-bladder. nt physicians paid much attention to uice, imputing to its sanity or the re- health or diseases which afflict the hu- d. The poets, who embalm and perpe- l the nonsense which prevails in their scribed to it a domineering influence on llectual vigor, the temper and dispositions mind. The bile with which we are best nted is ox-bile. It is of a yellowish-green bitter taste, and peculiar smell. When tly stirred it lathers like soap, and hence een called animal soap. It combines with r in any proportion, but not with oil; though adily combines with soap, and is used by rs to take greasy stains out of cloth. The st analysis of human bile with which we are ished, is that of Thenard, who in 1100 parts bile found the following products.

Water	1000
Undissolved yellow matter	10
Do. solution	a trace.
Albumen	42
Resin	41
Soda	5·6
Phosphates of lime and soda, sulphate and muriate of soda, and oxide of iron	4·5

CERUMEN OF THE EAR.

1665. This is a yellow-colored liquid secreted from glands in the auditory canal, which gradually hardens by exposure to the air. Its object is to guard against insects, which would soon destroy the tympanum or drum of the ear. Whether it acts as a poison to insects is not ascertained; but it is certain that no insect likes to approach it if the contact can be avoided. Vauquelin, from his own experiments and those of others on this substance, concludes that it consists of

1. Albumen
2. An inspissated oil
3. A coloring matter
4. Soda
5. Phosphate of lime.

TEARS AND MUCUS.

1666. Tears are transparent and colorless like water, but always exhibit a salt taste. Exposed to the air, the liquid becomes thicker, and at last deposits cubical crystals in the midst of mucilage. Fourcroy and Vauquelin state their composition to be

1. Water
2. Mucus
3. Muriate of soda
4. Soda
5. Phosphate of lime
6. Phosphate of soda.

Berzelius's more recent analysis gives

Water	933·7
Mucus matter	53·0
Muriates of potassa and soda	5·6
Prepared lactate of soda . .	0·9
Albumen, and animal matter insoluble in water but soluble in alcohol	3·5
	1000·0

The saline parts scarcely amount to one per cent. of the whole. The mucus absorbs oxygen from the atmosphere, becomes thick and viscid, and assumes a yellow color. It then becomes insoluble in water, though fresh tears are miscible with water in any proportion. The mucus of the nose is of the same properties with that which drops from the eyes, though, being longer suspended, and exposed to the air, it acquires greater consistency. Indeed the mucus of the eyes passes into the nostrils by particular apertures, which, being obstructed, the eyes become diseased. The mucus which lubricates various other parts of the body, has been supposed to consist of liquid albumen. Dr. Bostock has pointed out a difference in these substances.

LIQUOR OF THE PERICARDIUM.

1667. This liquor is enclosed in a membrane which invests the heart, and is intended to lubricate this organ, and to prevent the dangerous consequences of friction. Dr. Bostock examined this liquor taken from a boy who died suddenly. It very much resembled the serum of blood, and was composed of

Water	92·0
Albumen	5·5
Mucus	2·0
Muriate of soda . .	0·5
	100·0

HUMORS OF THE EYE.

1668. There are three humors which compose the lens by which vision is affected; and their different degrees of refracting power correct each other, and prevent the aberration of the rays of light. These humors are included within the cornea, and have obtained the names of the aqueous, the crystalline, and the vitreous humor. The vitreous is the interior humor, and is by far the largest in proportion. Mr. Chenevix examined the eyes of sheep, and found their aqueous and vitreous humors not to differ sensibly in their composition, except that the latter was rather of more specific gravity than the former. He found them to consist of

1. Water
2. Albumen
3. Gelatine
4. Muriate of soda.

Nicholas also detected a little phosphate of lime. The crystalline humor, or lens, is solid and transparent, and is composed of concentric coats, the densest of which are next the centre. It is composed of albumen and gelatine united with water, and the quantity of gelatine, according to Nicholas, diminishes as we approach the centre of the lens. It is nearly soluble in water, but coagulates in hot water. The humors of the human eye, of those of oxen, and of birds, do not differ sensibly from those of sheep, except in possessing a small degree more specific gravity.

SYNOVIA.

1669. This liquid is secreted between the moving joints of animals, and is evidently intended to lubricate the parts, and to prevent friction. Mr. Margueron examined synovia taken from the joints of the lower extremities of oxen. When fresh from the joint it is a viscid, greenish colored, semitransparent fluid, having a smell not unlike that of frog spawn. It soon acquires the consistence of jelly, but afterwards recovers its fluidity, and deposits a thready-like matter. It combines with water and renders it viscid. Alcohol precipitates from it albumen, and acids precipitate a fibrous matter, which has the smell, color, taste, and elasticity of vegetable gluten. When distilled there first comes over water which soon putrefies; then water containing ammonia; then empyreumatic oil and carbonate of ammonia. The coal contains muriate and carbonate of soda, and some phosphate of ammonia. From Mr. Margueron's analysis, it appears that the synovia of the ox is composed of

11·86	fibrous mattter
4·52	albumen
1·75	muriate of soda
0·71	soda
0·70	phosphate of lime
80·46	water.
100·00	

SEMEN.

1670. Of this Vauquelin published an analysis in 1791. When newly emitted it consists of two substances, one fluid and milky, supposed to be secreted by the prostate gland; the other thick and mucilaginous, in which numerous shining filaments may be discovered, is supposed to be secreted by the testes. It has a disagreeable smell, an acrid irritating taste, and a greater specific gravity than water. Rubbed in a mortar it becomes frothy. It converts paper stained with the blossoms of mallows or violets to a green color, and hence contains an alkali. After some time the whole becomes perfectly liquid, and then it readily dissolves in water, which does not take place when newly emitted. It readily combines with acids and alkalis. When exposed to the air at the temperature of 60° it assumes a transparent pellicle, and deposits small transparent crystals of phosphate of lime. If kept in very moist air at 77° it acquires the color of the yolk of an egg; its taste becomes acid, it exhales the odor of putrid fish, and its surface is covered by the byssus septica. According to Vauquelin, semen is composed of

90	water
6	mucilage
3	phosphate of lime
1	soda.
100	

LIQUOR OF THE AMNIOS.

1671. The amnios is a membrane which envelopes the fœtus in the uterus, and it is filled with a liquor in which the fœtus is immersed. Only the liquor amnii of women and of cows have yet been examined by Vauquelin and Buniva; and its probable this liquor varies in its properties in different animals. In the amnios of women this liquor is of a weak but pleasant odor, of a saltish taste, and of a slightly milky color, owing to a curdy matter suspended in it, which may be separated by filtration. It changes tincture of violets to green, and tincture of turnsole to red, which seem to indicate the presence both of an alkali and an acid. It froths when agitated, becomes opaque when heated, and emits the smell of boiled white of egg. Acids render it more transparent. Alkalis and alcohol produce flaky precipitates; the latter, being dried, becomes transparent, and much resembles glue. Infusion of nut galls produces a copious brown precipitate. When slowly evaporated it becomes slightly milky, and leaves a residuum not exceeding 0·012 of the whole. Thus the liquor in women's amnios has been found to consist of

98·8	water,
1·2	albumen, muriate of soda, soda, phosphate of lime, lime.
100·0	

1672. The curdy matter suspended in this liquor is often found deposited upon the skin of the fœtus, and is supposed by Vauquelin and Buniva to be formed from the albumen of that liquid, which has undergone some unknown changes. It has a strong resemblance to fat.

1673. The liquor in the amnios of the cow is of a brownish-red color, a bitter and acid taste, a viscidity similar to gum-arabic, and a peculiar smell. It reddens tincture of turnsole, and hence contains an acid. Muriate of baryta separates from it sulphuric acid. Alcohol separates a reddish colored matter. By evaporating the liquor to a fourth part of its bulk, and allowing it to cool, it deposits crystals of amniotic acid. Thus the liquor of the amnios of cows contains

1. Water
2. A peculiar animal matter, supposed a species of mucilage

at analysis gave
. 977
. 2·6
lcohol 16·6
gar of
. . . 3.8
1000·0

ons.

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animal. These poi-
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n it bites the vesicles are
poison is forced through a
d by the crooked fangs. If
angs be extracted the bite is
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inserted by the animal itself.
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who swallowed wine glasses nearly
venom fresh drawn from vipers and
s. They found it an exhilarating
ce, and to produce the same effects
as a dram of brandy, or rather a dose
Had there been any ruptured blood-
their gums, mouth, throat, or intestines,
iment would have proved immediately

Dr. Russel, from his experiments, thinks
oison of all other serpents is precisely
with that of the viper. This seems to
neous opinion, for it is known that the

effect of the bite of serpents in this country, taking a general average, depends upon the size and strength of the serpent which inflicts the wound, compared with the size and strength of the animal upon whom the wound is inflicted. Against this general rule there are many exceptions, for it is well known that there are several species of serpents in this country which never attain a large size, but which inflict a more fatal wound than others of more than three times their length, and more than ten times their weight. The cobra di capello is a serpent which abounds in India. Its length varies from the size of a man's little finger, to from ten to thirteen inches. The bite of this serpent does not depend upon the correlative size of its body and that of the animal bitten. Its bite, unless remedies are applied, always effects, sooner or later, the destruction of the animal bitten. It should appear that much ignorance still prevails respecting the principle upon which the agency depends of animal poisons; it is pretty certain however that there is a difference in the composition, as there is an ascertained difference in the effect, of the venom of serpents.

1678. Dr. Mead imagined the poison of serpents to consist of acids, and therefore recommended ammonia, or volatile alkali, as a certain cure. But we have seen that it exhibits no acid properties; and the numerous ineffectual trials of Fontana robbed this application of all its celebrity. Dr. Ramsay attempted to revive its credit as a cure for the bite of the rattle-snake. Others having observed that swine eat serpents, and seem not to be affected by their bite, have concluded that the grease with which these animals are invested operated as an antidote against the poison. They have hence recommended hogs' lard, or sweet oil, as an infallible remedy It appears that these applications can have no other effect than washing part of the venom out of the wound, before it enters the blood-vessels. The reason why swine do not seem to be hurt by the bite of serpents is, that the fat with which they are invested prevents the venom from entering their blood-vessels. In man and other animals the effect depends much upon the part of the body where the poison is inserted. Thus the bite of a viper seldom proves fatal to a sheep upon its legs, but if the animal should lie down upon a serpent and be bitten in the udder, or genitals, it always dies in consequence. If a man should incautiously swallow a wasp, and be stung by it in the throat, it proves fatal. Persons who have been bitten by serpents, though it did not prove fatal, have assured us that they always experienced a numbness and debility in the limb that had been bitten. As chemistry does not furnish us any certain knowledge or the properties of animal poisons the only antidote that appears infallible is an immediate excision of the part, and preventing the venom from entering into the circulation of the blood. For further information see the article Poisons.

URINE.

1679. This has attracted more of the attention of physicians than almost any other animal fluid. The alchemists believing it to be a microcosm, or concentrated essence of matter, labored to extract from it their grand elixir, or philosopher's stone. It was by following out such projects that phosphorus was first discovered.

1680. Healthy urine, when fresh, is generally transparent, of a light amber color, emits a smell resembling that of violets, and has a disagreeable taste. When it cools its smell is that which is termed urinous; and in a few days it emits a fetid alkaline smell. Lime water precipitates from fresh urine phosphate of lime. Hence this salt in urine contains an excess of acid; and this is the reason why fresh urine reddens turnsole, and paper stained with the juice of radishes. The super-phosphate of lime abounds most in the urine of sick and of gouty persons. There is also present in urine a little of the phosphate of magnesia. Prout observed that urine contains some carbonate of lime, and its presence seems inconsistent with that of super-phosphate of lime. Urine generally when it cools, and always after it has been reduced by evaporation, deposits a brick-colored precipitate, which is uric acid in crystals. During fevers, and some other diseases, a brick-red sediment is deposited from urine, which, as before observed, is the rosacic acid of Prout. If urine, especially that of horses and cows, be evaporated to the consistence of a syrup, and have muriatic acid poured into it, a deposition takes place of benzoic acid. Infusion of tannin precipitates from diseased urine gelatine or albumen. If urine be evaporated to a thick syrup, it consolidates on drying. Alcohol poured upon this mass dissolves urea, and being decanted off, and slowly distilled, the urea is obtained in a crystallised form. It is to urea that urine owes its peculiar properties. Prout also detected a small quantity of bile in urine. Urine likewise contains muriate of soda, and the fusible salt of urine, or microcosmic salt. It frequently also contains muriate of ammonia. These latter salts have the form of their crystals altered in consequence of holding urea in their composition. But the properties of these salts, and of urea, having been already illustrated, it seems unnecessary to recapitulate what was already stated. A silver basin is blackened if urine be boiled in it, and therefore it contains sulphur. When the urine putrefies, the sulphur escapes with carbonic acid, and blackens paper stained with acetate of lead, when exposed to its fumes. Healthy urine therefore contains the following ingredients. Though their portions vary from circumstances, and often some of these ingredients cannot be detected.

1. Water
2. Phosphoric acid
3. Phosphate of lime
4. Phosphate of magnesia
5. Carbonic acid
6. Carbonate of lime
7. Uric acid
8. Rosacic acid
9. Benzoic acid
10. Gelatine and albumen
11. Urea
12. Resin of bile
13. Muriate of soda
14. Phosphate of soda
15. Phosphate of ammonia
16. Muriate of ammonia
17. Sulphur.

1681. Several other salts have been occasionally detected in urine. No substance putrefies more rapidly than urine, or exhales a more disagreeable smell during putrefaction. Healthy urine often remains several days without putrefying; but diseased urine frequently putrefies the moment it is voided. This is supposed to be owing to the great proportion of albumen and gelatine it contains, which acting on the urea, new products are produced. Ammonia is produced, which saturates the phosphoric, uric, and benzoic acid; while part of the gelatine is precipitated in the form of white flakes, and the phosphates of lime and of magnesia form crystals on the sides of the vessel. The distillation of urine produces nearly the same changes as are effected by its putrefaction, and from both are obtained

1. Ammonia
2. Carbonate of ammonia
3. Phosphate of ammonia
4. Phosphate of magnesia and ammonia
5. Urate of ammonia
6. Acetate of ammonia
7. Benzoate of ammonia
8. Muriate of soda
9. Muriate of ammonia

1682. Considerable differences take place in the color and ingredients of urine from various diseases, which have lately become the objects of much attention with physicians and with chemists. The urines of various animals differ from each other, and from that of man. In general the urine of graminivorous quadrupeds has been found to agree with that of men, in containing urea; but differs from it in being destitute of phosphoric acid, the phosphates, and uric acid.

1683. Mr. Brande says the substances that are always found in urine, according to his own experiments, are the following:

1. Water
2. Carbonic acid
3. Phosphoric acid
4. Uric acid
5. Phosphate of lime
6. Phosphate of ammonia
7. Phosphate of soda
8. Phosphate of magnesia
9. Common salt
10. Sulphate of soda
11. Albumen
12. Urea.

1684. With regard to the proportion of the different ingredients of urine, says Dr. Henry, Berzelius finds that it differs essentially in the same individual, even from causes which have little influence on health. The following table may be considered as showing its average composition.

Water	933·00
Urea	30 10
Sulphate of potassa . . .	3·71
——— of soda	3·16
Phosphate of soda . . .	2·94
——— of ammonia . .	1·65
Muriate of soda	4·45
Free lactic acid	17·14
Lactate of ammonia	
Animal matter soluble in alcohol, and accompanying the lactates	

Animal matter insoluble in alcohol Urea not separable from the above	17·14
Earthy phosphates with a trace of fluate of lime . . .	1·00
Uric acid	1·00
Mucus of the bladder . .	0·32
Silica	0·03
	1000·00

1685. Urea consists, according to Dr. Prout, of

Oxygen	7·5
Nitrogen	13·0
Carbon	5·7
Hydrogen	2·0
	28·2

Feces.

1686. These are voided per anum by animals, after all the useful materials of their food are extracted, and sent into circulation for the nourishment of their bodies. They consist of the indigestible parts of the food, mixed with various liquids, which are discharged upon them during their passage through the intestines. Vauquelin and Berzelius, Thaer and Einhof, have made experiments upon them with a view to ascertain the changes produced on food by digestion, or the cause of the fertility produced by feces when applied as a manure.

1687. Fresh human feces do not alter vegetable colors, and hence contain no uncombined acid or alkali. Their taste is sweetish bitter; their mell is known to every one. Their consistency aries, and they lose about three-fourths of their eight when dried on a water bath. They may e diffused by agitation and maceration in water, nd the liquid, being passed through a linen loth, leaves a grayish brown matter, of a peculiar mell, which adheres long to the cloth. When dried, is substance amounts to about seven per cent. the feces, and it exhibits remains of the vegeble, and perhaps animal, matters used as food.

1688. The liquid which passes through the oth, deposits, after standing, a yellowish-green tter, which may be separated by the filter. hen dry, it amounts to about fourteen per cent. the feces. Alcohol separates from it a substance embling the resin of bile. When this is reved, water dissolves a yellow substance, which ms to consist of mucus, with perhaps a little tine. Tannin makes it muddy, but forms no cipitate. This substance soon putrefies, and ts the smell of putrid urine. There remains eenish-gray substance, insoluble in water and bol, which, when burnt, leaves some silica phosphate of potassa. The liquor which es through the filter, is at first yellow, but mes brown and muddy by exposure to the It was found to contain albumen, mixed phosphoric salts, bile, or rather the resin ile combined with soda, a peculiar sube of a reddish-brown color, soluble both in r and alcohol, to which acids give an intense n color. A small quantity of tannin throws it down in the form of a red powder; but a large quantity in grayish-brown flakes. The liquor also contained various salts, of which ammonio-phosphate of magnesia is the principal.—Human feces then, according to Berzelius consist of the following ingredients:—

Water	73·3
Vegetable and animal remains	7·0
Bile	0·9
Albumen	0·9
Peculiar extractive matter . .	2·7
Salts	1·2
Slimy matter; consisting of resin of bile, peculiar animal matter, and insoluble residue . . .	14·0
	100·0

1689. Thaer and Einhof operated on the dung of oxen that were fed on turnips. It putrefied readily, and changed the oxygen of the air into carbonic acid, as takes place in the putrefaction of vegetables. When fresh, and dried on a steam-bath, 100 parts leave 28½ of solid matter. Eight ounces, diffused through water, let fall forty-five grains of sand. The liquid, on standing, deposited a slimy substance, which was separated by the filter, and weighed, when dry, 480 grains. It was of the peculiar color and smell of the feces, and was considered by Einhof as the remains of vegetable matter used as food by the cattle. It probably contained also some resin of bile. The filtered solution was at first colorless, but soon became yellow, and then brown. Evaporated to dryness it left a brownish matter of a bitterish taste, weighing ninety grains, which was soluble in water, but not in alcohol. It soon putrefied, exhaling ammonia, and burnt like animal matter. It contained some phosphoric salts. When fresh cows' dung was dried and burnt, it left an ash composed of the following earths and salts, and in the following proportions:—

Lime	12
Phosphate of lime	12·5
Magnesia	2
Iron	5
Alumina and some magnesia . .	14
Silica	52
Muriate and sulphate of potassa .	1·2

1690, Vauquelin having calculated the amount of fixed matters taken in by hens as food, and having ascertained the amount of fixed matters given out by eggs and excrement, during the same period, found the fixed matters given out considerably to exceed the fixed matters taken into their stomachs. The fixed parts taken in by a hen in ten days while she was was fed on oats, amounted to 356·057 grains, consisting of phosphate of lime and silica. But during that time she gave out 971·482 grains, consisting of phosphate and carbonate of lime and silica, making the surplus given out 615·425 grains above what was taken in. Of this surplus 511·911 consisted of carbonate of lime, of which none was taken in with the food. The quantity of phosphate of lime given out, exceeded that taken in by 127·796 grains; but the silica given out was less than that taken in by 34·282 grains. It is possible the animal may have picked up carbonate of lime from the plaster of the room. But if not, and if this experiment be found correct, it will prove that neither phosphorus, nor lime, nor perhaps any of the earths are simple substances, and that animals have a power of forming them by the process of digestion. Indeed this fact seems now to be verified by the splendid discoveries of Sir H. Davy so often alluded to, which have incontestably proved that the bases of the alkalis and alkaline earths are metallic substances. It seems very probable that plants and animals have a power of forming the earths, &c. from their principles absorbed by their roots or stomachs, or from the atmosphere.

MORBID CONCRETIONS.

1691. Such of these as have been hitherto observed have been divided into

OSSIFICATIONS.

1692. Of these the first that occur are pineal concretions, which are formed in the pineal gland, situated in the centre of the brain. They resemble particles of sand, and can hardly be called morbid, because we believe they occur in all adults. 2. Salivary concretions are often formed in the salivary glands, especially the parotid and sublingual. 3. Pancreatic concretions are often found in the pancreas. 4. Pulmonary concretions are often coughed up by persons laboring under consumption, and the lungs of such persons contain many similar bodies. 5. Hepatic concretions. These are sometimes formed in the liver, and are commonly of a more irregular shape, and of a much larger size than any of the former. 6. Concretions in the prostate are sometimes formed in the prostate gland. 7. The extremities of the muscles, of the larger blood vessels, together with the valves of the heart and aorta, often harden and assume the appearance of bone. This happens chiefly to aged persons, and unfits the organs for discharging their functions. Dr. Wollaston found pineal concretions to consist chiefly of phosphate of lime. Perhaps their composition may vary with the age of the person, or they may sometimes contain a mixture of phosphate of lime with silica. It was thought they were silicious, because such as were tried scratched glass, and were insoluble in every acid they applied. The other concretions which have been examined have been found to consist chiefly of phosphate of lime, and tough animal membrane. Sometimes they contain a portion of carbonate of lime; and a pulmonary concretion, examined by Mr. Crompton, contained no phosphate, but consisted of

Carbonate of lime	8
Animal matter and water . .	18
	100

INTESTINAL CONCRETIONS.

1693. These, sometimes of considerable size, are occasionally found in the stomach and intestines, seldom indeed of man, but more frequently in those of inferior animals. Some of them are called bezoars, and their medical virtues were much extolled, though they seem now to have lost their celebrity. The principal of these, as pointed out by Fourcroy and Vauquelin, are. 1. *Superphosphate of lime*, which is arranged in concentric layers, very brittle, and easily separable from each other. They are partially soluble in water, redden vegetable blues, and were found in the intestines of different mammalia. 2. *Phosphate of magnesia* forms an uncommon concretion, semi-transparent, and usually of a yellowish color. It is arranged in layers not so easily separable as the former. 3. *Phosphate of ammonia and magnesia.*—This is the most common of any, is of a gray or brown color, is composed of crystals diverging like radii from a centre, and somewhat resembles spar of lime. It contains much animal matter, and is often found in the intestines of the horse, the elephant, and other herbivorous animals. 4. *Biliary.*—These are sometimes found in the intestines and gall-bladders of oxen. They are a coagulated mass, of a reddish-brown color. Painters use them as an orange-yellow pigment, and they do not seem to differ much from the resinous matter of bile. 5. *Resinous.*—These are the oriental bezoars formerly so celebrated, and are obtained from animals with which we are unacquainted. Fourcroy and Vauquelin distinguish two varieties of them. The first are of a pale green color, and seem to consist of bile and resin. The second of a brown or violet color, and their composition more uncertain. Both are fusible and combustible, composed of concentric layers, smooth, soft, and finely polished. The first is soluble in alcohol, the second in alkalis. 6. *Hairy.*—These consist of balls of hair, which are often of very large size, are felted together like a hat, and are found in the stomachs and intestines of various animals. They sometimes contain a mixture of vegetable matters, sometimes are coated with animal matter. They occur frequently in cows, and are thought to be occasioned by the animals licking off their own or each others' hair. By obstructing the passage of the intestines, they frequently occasion the death of the animal.

BILIARY CALCULI.

1694. This name, and that of gall-stones, has been applied to certain concretions which occur in the gall-bladder, or in the duct by which the bile passes into the intestines. They have long attracted the notice of physicians, as, by obstructing or stopping the passage of the bile, they occasion the jaundice. Four kinds of them have been distinguished. The first is always of a white, yellow, or greenish color, of an oval shape, and sometimes as large as a pigeon's egg; and constantly includes a nucleus of inspissated bile. Its specific gravity is less than that of water, being about 0·803. It is insoluble in water, but dissolves in hot alcohol, from which it drops in brilliant plates when the alcohol cools. It also melts by heat, and crystallises when cooling. It is soluble in oil of turpentine, and with alkalis forms a soap. Fourcroy describes the substance which forms this concretion as consisting principally of adipocire. The second species is of a polygonal shape, and a number of them are always found in the same gall-bladder together. In composition this species differs little from the former, being almost wholly composed of adipocire. The third species consists entirely of inspissated bile, and has not been found in the human species, though it is frequent in oxen and other inferior animals. Concerning the fourth species very little is known, except that it neither dissolves in alcohol nor in oil of turpentine.

1695. Chevreul, who has recently examined biliary calculi, gives to the crystalline matter, which is found in them, the name of cholesterine, being different in his opinion both from spermaceti and adipocire. See Calculus, Biliary.

Urinary Calculi.

1696. These are the most frequent, as well as the most formidable of all morbid concretions. They obtained the name of calculi from a supposition they were stones. They are either egg-shaped, or polygonous, or resemble a cluster of mulberries, in which case they have obtained the name of mulberry. Many of them are very small, and some exceed the size of a goose-egg. Their color is deep brown, white, or dark gray, and often these colors are intermixed. Their surface is sometimes smooth, sometimes rough and unequal. Their specific gravity varies from 1·213 to 1·976. The substances of which they are composed are

1. Uric acid.
2. Urate of ammonia.
3. Phosphate of lime.
4. Phosphate of magnesia and ammonia.
5. Oxalate of lime.
6. Silica.

. Animal matter.

1697. Many of these calculi are composed entirely of uric acid, and most of them contain a greater or smaller proportion of this acid in their composition. The uric calculi are brown, polished, and resemble wood. They readily dissolve in solution of potassa or soda, from which any weak acid precipitates the uric. The precipitate is soluble in nitric acid, and the solution tinges the skin red. 2nd. The calculi composed of urate of ammonia occur less frequently than the former, though this substance enters into the composition of various other calculi. The only pure concretions of this sort, are the very small polygonal calculi, several of which are found in the bladder at the same time. They are composed of thin layers, have the color of a dish of coffee, and rapidly dissolve in fixed alkaline lees, while they emit the odor of ammonia during solution. 3rd. The calculi composed of phosphate of lime which occurred to Fourcroy and Vauquelin, were white, and appeared like chips of broken chalk, which were held together by gelatinous matter. They were soluble in nitric, muriatic, and acetic acids; and again precipitated by ammonia, fixed alkalis, and oxalic acid. The gelatinous part retained the form of a membrane after the earthy part was dissolved by very diluted acids. 4th. Calculi composed of phosphate of magnesia and ammonia never occur without combination with other substances, sometimes phosphate and sometimes oxalate of lime, and sometimes it covers uric acid. These calculi consist of white semitransparent, lamellar layers; and sometimes this substance is crystallised on their surface in the form of prisms. It is very soluble in acids, though much diluted; and alkalis decompose it, leaving magnesia undissolved. 5th. Oxalate of lime, combined with phosphate of lime, and usually with uric acid, was first detected in the mulberry calculi by Dr. Wollaston; Fourcroy and Vauquelin found several calculi composed entirely of oxalate of lime and animal matter. Such calculi are of a dark green color, very hard and difficult to saw asunder, and while sawing emit the smell of semen. They take a polish like ivory. They are only soluble, slowly and with difficulty, in very diluted nitric acid, but are decomposed by the carbonates of potassa and soda. 6th. Fourcroy and Vauquelin, who analysed upwards of 600 calculi, only found silica in two instances, in two mulberry calculi, where it was mixed with phosphate of lime. These calculi were of a lighter color than usual, very hard, difficult to saw or reduce to powder. Such an occurrence is very uncommon, and not easily accounted for. 7th. The animal matter, which enters into the composition of calculi, seems to be the cement which holds the more solid particles together. It may be easily known by the blackening of the calculi when exposed to great heat, and by their emitting the smell of ammonia.

1698. The calculi hitherto found in the bladders of the inferior animals are of a mixed nature. Those found in the graminivorous animals, such as the horse, rabbit, ox, and sow, are chiefly composed of carbonate of lime, mixed with animal matter. For an account of the varieties of calculi &c. see Medicine and the word Calculus.

Gouty Concretions.

1699. These are formed in the joints of persons laboring under the gout. From their whiteness and softness they have obtained the name of chalk stones; and there have been persons laboring under this disease who could write upon a wall, with the knuckles of their fingers, as if it had been done by chalk. They are usually small, but have sometimes been observed of the size of an egg. In 1797, Dr. Wollaston ascertained them to be composed of uric acid and soda. If uric acid, soda, and a little warm water be triturated together, a mass is formed which, after the excess of soda is washed off, has all the properties of gouty concretions. We shall now present to the reader the following tabular view, principally of vegetable compounds which we extract from Mr. Brande.

1700. TABULAR VIEW OF THE EQUIVALENT NUMBERS OF VEGETABLE AND ANIMAL PRODUCTS, AND THEIR COMBINATIONS.

SUBSTANCES.	Equivalent Number.	COMPOSITION.
I. GUM	85	
Bigummate of lead . . .	274·5	170 gum. + 104·5 oxide of lead.
II. SUGAR	75	
Saccharate of lead . . .	179·5	75 sugar + 104·5 oxide of lead.
III. STARCH	135	
Binamilate of lead . . .	374·5	270 starch + 104·5 oxide of lead.
IV. TANNIN	200	
Tannate of lead	304·5	200 tannin + 104·5 oxide of lead.
V. WAX	140	
VI. OIL?		
VII. CAMPHORIC ACID?		
VIII. SUCCINIC ACID	47	
Succinate of ammonia . .	63	47 S. A + 16 ammon.
———— potassa . . .	92	47 S. A. + 45 P.
———— soda . . .	76·5	47 S. A. + 29·5 S.
———— lime . . .	73·5	47 S. A. + 26·5 L.
———— baryta . .	119·5	47 S. A. + 72·5 B.
———— strontia . . .	99	47 S. A. + 52 S.
———— magnesia . .	65·5	47 S. A. + 18·5 M.
———— manganese . .	83	47 S. A. + 36 O. M.
———— iron . . .	80·5	47 S. A. + 33·5 O. I.
———— zinc . . .	87·5	47 S. A. + 40·5 O. Z.
———— tin	110	47 S. A. + 63 O. T.
———— copper? . . .	114·5	47 S. A. + 67·5 O. C.
———— lead . . .	151·5	47 S. A. + 104·5 O. L.
IX. MORPHIA	300?	
X. MECONIC ACID	21?	
XI. STRICHNIA	357?	
XII. BRUCIA?		
XIII. DELPHIA?		
XIV. MELLITIC ACID?		
XV. TARTARIC ACID	62·5	
Tartrate of ammonia . . .	78·5	62·5 T. A. + 16 ammon.
———— potassa . . .	107·5	62·5 T. A. + 45 P.
Bi-tartrate of potassa . . .	170	125 T. A. + 45 P.
Tartrate of potassa and ammonia	186	125 T. A. + 45 P + 16 amm.
———— soda	92	62·5 T. A. + 29·5 S.
———— potassa and soda .	199·5	125 T. A. + 29·5 S. + 45 P.
Tartrate of lime	89	62·5 T. A. + 26·5 L.
———— and potassa .	196·5	125 T. A. + 26·5 L. + 45 P.
———— baryta . . .	135	62·5 T. A. + 72·5 B.
———— strontia . . .	114·5	62·5 T. A. + 52 S.
———— magnesia . . .	81	62·5 T. A. + 18·5 M.
———— manganese . .	98·5	62·5 T. A. + 36 O. M.
———— iron	96	62·5 T. A. + 33·5 O. I.
———— —— and potassa . .	203·5	125 T. A. + 33·5 O I. + 45 P.
———— zinc	103	62·5 T. A. + 40·5 O. Z.
———— tin	125·5	62·5 T. A. + 63 O. T.
———— and potassa . .	233	125 T. A. + 63 O. T. + 45 P.
———— copper . . .	200	125 T. A. + 75 perox. C.
———— lead	167	62·5 T. A. + 104·5 O. L.
———— and potassa .	274·5	125 T. A. + 104·5 O. L. + 45 P.
———— antimony . . .	115	62·5 T. A. + 52·5 O. A.
———— and potassa .	222·5	125 T. A. + 52·5 O. A. + 45 P.
———— bismuth . . .	136·5	62·5 T. A. + 74 O. B.
———— cobalt . . .	100·5	62·5 T. A. + 38 O. C.
———— uranium?		
———— titanium?		
———— cerium?		
———— nickel . . .	98	62·5 T. A. + 35·5 O. N.

	Equivalent Number.	COMPOSITION.
	260	62·5 T. A. + 197·5 O. M.
al potassa	367·5	125 T. A. + 197·5 O. M. + 45 P.
	172·5	62·5 T. A. + 110 O. S.
potassa	280	125 T. A. + 110 O. S. + 45 P.
	35·5	
	51·5	35·5 O. A. + 16 am.
	80·5	35·5 O. A. + 45 P.
	65	35·5 O. A. + 29·5 S.
	62	35·5 O. A. + 26·5 L.
	108	35·5 O. A. + 72·5 B.
	87·5	35·5 O. A. + 52 S.
	54	35·5 O. A. + 18·5 M.
[illegible]	74·5	35·5 O. A. + 39 O. M.
	69	35·5 O. A. + 33·5 O. I.
	76	35·5 O. A. + 40·5 O. Z.
	98·5	35·5 O. A. + 63 O. T.
	146	71 O. A. + 75 perox. C.
and ammonia	197·5	146 Ox. Cop. + 51·5 oxal. am.
and potassa	226·5	146 Ox. Cop. + 80·5 ox. pot.
and soda	211	146 Ox. Cop. + 65 ox. sod.
	140	35·5 O. A. + 104·5 O. L.
ony	88	35·5 O. A. + 52·5 O. ant.
uth	129·5	55·5 O. A. + 74 O. B.
	73·5	35·5 O. A. + 38 O. C.
ium		
l	71	35·5 O. A. + 37·5 O. N.
ury	233	35·5 O. A. + 197·5 O. M.
er	145·5	35·5 O. A. + 110 O. S.
	55·5	
monia	71·5	55·5 C. A. + 16 am.
sa	100·5	55·5 C. A. + 45 P.
a	85	55·5 C. A. + 29·5 S.
e	82	55·5 C. A. + 26·5 L.
yta	128	55·5 C. A. + 72·5 B.
ntia	107·5	55·5 C. A. + 52 S.
gnesia	74	55·5 C. A. + 18·5 M.
nganese	91·5	55·5 C. A. + 36 O. M.
on	89	55·5 C. A. + 33·5 O. I.
inc	96	55·5 C. A. + 40·5 O. Z.
tin	118·5	55·5 C. A. + 63 O. T.
copper	186	111 C. A. + 75 per ox. C.
d of	160	55·5 C. A. + 104·5 O. L.
antimony?		
bismuth	129·5	55·5 C. A. + 74 O. B.
cobalt	93·5	55·5 C. A. + 38 O. C.
— cadmium?		
— nickel	90	55·5 C. A. + 34·5 O. N.
— mercury	253	55·5 C. A. + 197·5 O. M.
— silver	165·5	55·5 C. A. + 110 O. S.
	66	
Acid	60	
Acid	112	
of ammonia	128	112 B. A. + 16 amm.
——— potassa	157	112 B. A. + 45 P.
——— soda	141·5	112 B. A. + 29·5 S.
——— lime	138·5	112 B. A. + 26·5 L.
——— baryta	184·5	112 B. A. + 72·5 B.
——— lead	216·5	112 B. A. + 104·5 O. L.
Acid	48	
of ammonia	64	48 A. A. + 16 amm.
——— potassa	93	48 A. A. + 45 P.
——— soda	77	48 A. A. + 29·5 S.
——— lime	74·5	48 A. A. + 26·5 L.
——— baryta	120·5	48 A. A. + 72·5 B.
——— strontia	100	48 A. A. + 52 S.
——— magnesia	66·5	48 A. A. + 18·5 M.

SUBSTANCES.	Equivalent Number.	COMPOSITION.
Acetate of manganese	84	48 A. A. + 36 O. M.
——— iron	81·5	48 A. A. + 33·5 O. I.
——— zinc	88·5	48 A. A. + 40·5 O. Z.
——— tin	111	48 A. A. + 63 O. T.
——— copper	171	96 A. A. + 75 Perox. C.
——— lead	152·5	48 A. A. + 104·5 O. L.
——— bismuth	122	48 A. A. + 74 O. B.
——— mercury	245·5	48 A. A. + 197·5 O.M.
——— silver	158	48 A. A. + 110 O. S.
——— alumina?		
XXII. FORMIC ACID?	Probably a compound of malic and acetic acids.	
XXIII. URIC ACID?	33	

APPENDIX.

1701. The duty of an encyclopædiast is of a humble nature. It is for him to collect, and digest, and collate, and concentrate. Although humble, it is however, an important and responsible undertaking in which he engages. He is required not only to give a succinct account of all that is known respecting the science and subject of which he treats, but also to render the conception of that subject, and the acquirement of that science, as facile to his readers as is consistent with its nature.

1702. In looking over what we have written and extracted on the subject of chemistry, it appears to us that the reader may occasionally be at a loss, especially in understanding the tables of components, without a more ample and detailed account than will be found of the doctrine of equivalents as connected with the atomic theory, or, as it ought to be named, that of definite proportions.

1703. Under this feeling we present our readers with the following able and ample disquisition on this most interesting topic from Dr. Ure's Dictionary. We act in this particular under permission, and have thought it better at once to give the whole paper, proportionately long though it may be found, than to attempt its abridgment.

1704. CHEMICAL EQUIVALENTS, a term happily introduced into chemistry by Dr. Wollaston, to express the system of definite ratios, in which the corpuscular subjects of this science reciprocally combine, referred to a common standard, reckoned unity. If, with this profound philosopher, we assume oxygen as the standard, from its almost universal relations to chemical matter, then calling it unity, we shall have, in the following examples, these ratios reduced to their lowest terms, in which the equivalents will be prime ratios :

The lowest ratio, or equivalent prime of oxygen being . . . . . 1·000

That of hydrogen will be	0.125
Fluor	0·375
Carbon	0·750
Phosphorus	1·500
Azote	1·750
Sulphur	2·000
Calcium	2·550
Sodium	3·000
Potassium	5·000
Copper	8·00
Barium	8·75
Lead	13·00, &c.

1705. The substances in the above table, susceptible of reciprocal saturation, can combine with oxygen or with each other, not only in proportions corresponding to these numbers, but also frequently in multiple or sub-multiple proportions. We have therefore two distinct propositions on this interesting subject.

1706. i. The general reciprocity of the saturating proportions.

1707. ii. The multiple and submultiple proportions of prime equivalents, in which any one body may unite with any other body, to constitute successive binary compounds.

1708. The first proposition, or grand law of chemical combination, was discovered by J. B. Richter, of Berlin, about the year 1792. The second, of equal importance, and more recondite, was discovered so early as the year 1788, by Mr. W. Higgins.

1709. Richter inferred his from the remarkable and well established fact, that two neutral salts, in reciprocally decomposing each other, give birth to two new saline compounds, always perfectly neutral. Thus sulphate of soda being added to muriate of lime will produce perfectly neutral sulphate of lime and muriate of soda. The conclusions he drew were, First, that the quantities of two alkaline bases, adequate to neutralise equal weights of any one acid, are proportional to the quantities of the same bases, requisite to neutralise the same weights of every other acid. For example, six parts of potash, or four of soda, neutralise five of sulphuric acid; and 4·4 of potash are adequate to the saturation of five of nitric acid. Therefore, to find the quantity of soda equivalent to the saturation o this weight of nitric acid, we need not make experiments, but merely compute it by the proportional rule of Richter. Thus, as 6 : 4·4 : : 4 . 2·93; or, in words, as the potash equivalent to the sulphuric acid, is to the potash equivalent [illegible] the nitric acid, so is the soda equivalent to the first to the soda equivalent to the second. An again, if 6·5 potash saturate five of muriatic gas, how much soda, by Richter's rule, will be re-

ɛ say 6 : 6·5 : : 4
combine with five
oda will be equi-
: 10·9 : : 4 : 7·26.
l that if six potash
ı saturating five of
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ossible saline com-
be the quantity of
ive, ten, &c. of any
hat quantity of soda

er let us find out for
ıy one standard acid,
ammonia, magnesia,
:roxide of copper, and
: proportions to potash
acid will, by arithme-
· saturating quantity of
elation to potash, or in-
bases, is known.
ıtal verification of this
upied Richter from the
802, in which period he

published, in successive parts, a curious work, entitled the Geometry of the Chemical Elements, or Principles of Stechiometry. We might have expected greater accuracy in his investigations, from the circumstance that Dr. Wollaston selected *his* statement of the constituents of nitre, in preference to those of all other chemists, in the construction of his admirable table of chemical proportions.

1712. With indefatigable zeal Richter examined, by experiment, each acid in its relation to the bases, and then compared the results with those given by calculation, presenting both in an extensive series of tables.

1713. It is curious that he does not seem to have been aware that all his tables might have been reduced into a single one, of twenty-one numbers, divided into two columns, by means of which, every question relating to the included articles might be solved by the rule of three, or a sliding scale. The following table, computed by Fischer from Richter's last tables, was inserted by the celebrated Berthollet in a note to his chemical statics.

		Oxygen = 1.	Acids.		Oxygen = 1.
	525	2·625	Fluoric	427	2·135
ı	615	3·075	Carbonic	577	2·885
a	672	3·36	Sebacic	706	3·530
	793	3·965	Muriatic	712	3·560
	859	4·245	Oxalic	755	3·775
.n	1329	6·645	Phosphoric	979	4·895
	1605	8·025	Formic	988	4·94
	2222	1·111	Sulphuric	1000	5·000
			Succinic	1209	6·045
			Nitric	1405	7·025
			Acetic	1480	7·400
			Citric	1683	8·415
			Tartareous	1694	8·470

added the two columns under
.ch we see at once, that with the
bases, lime, strontian, and soda,
bonic, muriatic, sulphuric, nitric,
ic; the numbers given by Richter
erable approximations to the true
The object of the above table was
ʳ the quantities of acid and alkali
nutual saturation. For example,
ɛ to potash, is the quantity of that
lent to neutralise 427 of fluoric
ɔonic, 712 muriatic, 1000 sulphuric,
olumn affords also progressively in-
ıbers. Those nearest the top have
acid or alkaline energies, as mea-
ir powers of saturation. The column
ɿives, therefore, as far as the analy-
of his time permitted, a table of the
ights of what has since been hypothe-
ed the atoms.

ı. But two chemical constituents fre-
ıite in different proportions, forming
ıd often dissimilar compounds. Thus
nd azote constitute in one proportion
ɩxide, the intoxicating gas of Sir H.
ı a second proportion nitric oxide, the

nitrous gas of Priestley; in a third proportion nitrous acid; and in a fourth proportion nitric acid. Is there any law regulating these various compounds, so that knowing the first proportion we may infer the whole series? This question was first considered in a work containing many curious anticipations of discoveries, to which posterior writers have laid claim, I mean Mr. Higgins's Comparative View of the Phlogistic and Antiphlogistic Theory, printed in 1788, and published early in 1789. Besides some additional facts, decisively hostile to the hypothesis of phlogiston, this publication indicates the doctrine of multiple proportion, with regard to the successive compounds of the same constituents. This was likewise interwoven with new and ingenious views concerning gaseous and atomical combination. Mr. Higgins having felt himself aggrieved at seeing discoveries, first announced by him in 1789, brought forward nineteen years afterwards by Mr. Dalton, in his own name, published in 1814 a book, entitled Experiments and Observations on the Atomic Theory and Electrical Phenomena. In this work he gives numerous quotations from his Comparative View which appear to establish his claim of priority to ne discovery of multiple proportions, and the atomic theory of chemistry. It is no fault of Mr. Higgins that his first work partook of the imperfect analyses of the day. Indeed we have reason, on the contrary, to be surprised at his rejection of many errors then sanctioned by high authority, and his promulgation of many new truths which might appear to contemporary writers insulated or of little consequence, but to which subsequent researches have given a due place and importance in the system of chemical knowledge. Who would deny to Columbus the glory of discovering a new world, merely because the means of research placed within his power did not permit him to explore its extensive coasts? Is not that glory, on the contrary, greatly enhanced by the very early period at which the discovery was achieved, while navigation as a science was still unknown? I shall quote a few passages, as he gives them, from his Comparative View, which I think are decisive in this historical discussion.

1716. 'Hepatic gas (sulphureted hydrogen,) as shall be shown, is hydrogen in its full extent, holding sulphur in solution.' This fact, of hydrogen not changing its volume by combining with sulphur, has been marked among the valuable discoveries of later times.

1717. 'Therefore 100 grains of sulphur require only 100 or 102 of the dry gravitating matter of oxygen gas to form sulphurous acid. As sulphurous acid gas is very little more than double the specific gravity of oxygen gas we may conclude that the ultimate particles of sulphur and oxygen contain the same quantity of matter; for oxygen gas suffers no considerable diminution of its bulk by uniting to the quantity of sulphur necessary for the formation of sulphurous acid. It contracts 1-11th, as shall be shown hereafter.' Sir H. Davy has since proved, by accurate experiments, that hydrogen, in its conversion into sulphureted hydrogen, does not change its bulk agreeably to Mr. Higgins's early enunciation.

1718. The elementary proposition of Mr. Dalton's atomical hypothesis seems to be most explicitly announced in the following paragraph of Mr. Higgins.

1719. 'As two cubic inches of hydrogen gas require but one cubic inch of oxygen gas to condense them to water, we may presume that they contain an equal number of divisions, and that the difference of the specific gravity of those gases depends on the size of their respective particles; or we may suppose that an ultimate particle of hydrogen requires two or three or more particles of oxygen to saturate it. Were this the case, water, or its constituents, might be obtained in an intermediate state of combination, like those of sulphur and oxygen, or azote and oxygen, &c. This appears to be impossible; for in whatever proportion we mix hydrogen or oxygen gases, or under whatever circumstances we unite them, the result is invariably the same. Water is formed and the surplus of either of the gases is left behind unchanged.' 'From these circumstances we have sufficient reason to conclude that water is composed of a single ultimate particle of oxygen, and an ultimate particle of hydrogen, and that its atoms are incapable of uniting to a third particle of either of its constituents.'

1720. Mr. Higgins inculcates very strongly that when a body is capable of combining with another in two proportions, the third particle introduced is held by a much weaker affinity than that which unites the particles of the first or true binary compound.

1721. 'In my opinion the most perfect nitrous acid contains five of oxygen and one of azote. Nitrous gas, according to Kirwan, contains two volumes of oxygen gas and one of azotic gas. According to Lavoisier, 100 grains of nitrous gas contain thirty-two grains of azote, and sixty-eight of oxygen. I am of the former philosopher's opinion. I also am of opinion that every primary particle of azote is united to two of oxygen, and that the molecule thus formed is surrounded with one common atmosphere of caloric.

1722. 'As this requires demonstration, let A in the annexed diagram represent an ultimate particle of azote, which attracts oxygen with the force of three;

$$A\;\overset{3\qquad\qquad 6\qquad\qquad 3}{\rule{10em}{0.4pt}}\;a$$

Let a be a particle of oxygen, whose attraction to A we will suppose to be three more; hence they will unite with the force of six: the nature of this compound will be hereafter explained. Let us consider this to be the utmost force of attraction that can subsist between oxygen and azote. We will now suppose a second particle of oxygen b to combine with A; they will only unite with the force of $4\frac{1}{2}$.' 'This I consider to be the real structure of a molecule of nitrous gas. Let a third particle of oxygen c unite to A, it will combine only with the force of four. This is the state of the red molecules of nitrous vapor, or, when condensed, the red nitrous acid.' 'We will suppose a fourth particle of oxygen d, to combine with A; it will unite with the force of $3\frac{3}{4}$, and so on with the rest of the particles of oxygen as the diagram represents. This I consider to be the state of a molecule of the pale or straw-colored nitrous acid.

1723. 'When a fifth particle of oxygen, e, unites, the force of union existing between the particles of the molecule is still diminished, as is represented by the diagram. The fractions show that the chemical attraction of azote for oxygen is nearly exhausted. This is the state of colorless nitrous acid, and, in my opinion, no more oxygen can unite to the azote, having its whole force of attraction expended in the particles a, b, c, d, e. This illustrates the nature of saturation or definite proportions.

1724. 'We can readily perceive, from the foregoing demonstrations, that oxygen is retained with less force in the colorless nitrous acid than in the straw-colored; and the latter acid retains it with less force than the red nitrous acid; and nitrous gas holds it with still more force than the red nitrous acid. This accounts for the separation of oxygen gas from the colorless nitrous acid (nitric acid) when exposed to the sun, at the same time that the acid becomes colored.

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r gas, or by weight of eight to one.

We are not in the least authorised to infer from this, that an atom of oxygen weighs eight times as much as an atom of hydrogen. For aught we know, water may be a compound of two atoms of hydrogen, and one of oxygen; in which case we should have the proportion of the weights of the atoms, as given by equal volumes, namely, 1 to 16. There is no good reason for fixing on one compound of hydrogen, more than on another, in the determination of the basis of the equivalent scale. If we deliberate on that combination of hydrogen, in which its agency is apparently most energetic, namely, that with chlorine, we would surely never think of pitching on two volumes as its unity or least proportion of combination; for it is one volume of hydrogen which unites with one volume of chlorine, producing two volumes of muriatic gas. Here, therefore, we see that one volume of hydrogen is quite adequate to effect, in an active gaseous body of equal bulk, and thirty-six times its weight, an entire change of properties. Should we assume in gaseous chemistry, two volumes of hydrogen as the combining unit, or as representing an atom; then it should never unite in three volumes, or an atom and a half with another gas. Ammonia, however, is a compound of three volumes of hydrogen with one of azote; and, if two volumes of hydrogen to one of oxygen be called an atom to an atom, surely three volumes of hydrogen to one of azote should be called an atom and a half to an atom. Yet the Daltonian commentator, on the second occasion, counts one volume an atom of hydrogen, and, on the first, two volumes an atom.

1730. We would steer clear of all these gratuitous assumptions and contradictions, by making a single volume of hydrogen represent its atom, or prime equivalent. 'There is an advantage,' says Dr. Prout, 'in considering the volume of hydrogen equal to the atom, as, in this case, the specific gravities of most, or perhaps all elementary substances (hydrogen being one), will either exactly coincide with, or be some multiple of the weights, of their atoms; whereas, if we make the volume of oxygen unity, the weights of the atoms of most elementary substances, except oxygen, will be double that of their specific gravities, with respect to hydrogen. The assumption of the volume of hydrogen being equal to the atom, will also enable us to find more readily the specific gravities of bodies in their gaseous state (either with respect to hydrogen or atmospheric air), by means of Dr. Wollaston's logometric scale.

1731. 'If the views we have ventured to advance be correct, we may almost consider the πρωτη ὕλη of the ancients to be realised in hydrogen; an opinion, by the by, not altogether new. If we actually consider this to be the case, and further consider the specific gravities of bodies, in their gaseous state, to represent the number of volumes condensed into one; or, in other words, the number of the absolute weight of a single volume of the first matter (πρωτη ὕλη) which they contain, which is extremely probable; multiples in weight must always indicate multiples in volume, and vice versa; and the specific gravities or absolute weights of all bodies in a gaseous state, must be multiples of the specific gravity, or absolute weight of the first matter (πρωτη ὕλη), because all bodies in a gaseous state, which unite with one another unite with reference to their volume.'

1732. From these ingenious observations, we perceive the singular felicity of judgment with which Sir H. Davy made choice of the single volume of hydrogen, for the unit of primary combination, in his Elements of Chemical Philosophy.

1733. Mr. Dalton's prelections on the atomic theory, and even the first volume of his new system of chemical philosophy, excited no sensation in the chemical world adequate to their merits. That part of his system which treated on caloric was blended with so much mere hypothesis, that chemists transferred a portion of the scepticism thus created, to his collation of primary and multiple combinations. It was Dr. Wollaston who first decided public opinion in favor of the doctrine of multiple proportions, by his elegant paper on super-acid and sub-acid salts, inserted in the Philosophical Transactions for 1808. The object of the atomic theory has been nowhere so happily stated as by this philosopher, in the following sentence;—

1734. 'But, since the publication of Mr. Dalton's theory of chemical combination, as explained and illustrated by Dr. Thomson (System, 3rd edition), the enquiry which I had designed appears superfluous, as all the facts I had observed are but particular instances of the more general observation of Mr. Dalton, that in all cases the simple elements of bodies are disposed to unite atom to atom singly, or, if either is in excess, it exceeds by a ratio to be expressed by some simple multiple of the number of its atoms.'

1735. It is evident from this passage, that the principle which presented itself to Mr. Dalton, on a review of the labors of other chemists, had really occurred to Dr. Wollaston from his own, and that he would unquestionably have been speedily led to its full development.

1736. Dr. Wollaston, in the above decisive paper, demonstrates, that in the sub-carbonate and crystallised carbonate of potassa, the relation of the carbonic acid to the base, in the first, is exactly one-half of what it is in the second. The same law is shown to hold with regard to the two carbonates of soda, and the two sulphates of potassa; and, being applied to his experiments on the compounds of potassa and oxalic acid, leads him to conclude that the neutral oxalate may be considered as consisting of two particles potassa to one acid; the binoxalate as one and one, or two potassa with two acid; the quadroxalate as one and two, or two potassa with four acid.

1737. We cannot withhold from our readers the following masterly observations, which must make every one regret that the full development of the atomic theory had not fallen within the scope of his researches.

1738. 'But an explanation which admits a double share of potassa in the neutral salts (the oxalates), is not altogether unsatisfactory; and I am farther inclined to think, that when our views are sufficiently extended to enable us to reason with precision concerning the proportions of elementary atoms, we shall find the arithmetical relation alone will not be sufficient to explain their mutual action, and that we shall be obliged to acquire a geometrical conception of their relative arrangement, in all the three dimensions of solid extension.

1739. 'For instance, suppose the limit to the approach of particles to be the same in all directions, and hence their virtual extent to be spherical (which is the most simple hypothesis); in this case, when different sorts combine singly, there is but one mode of union. If they unite in the proportion of two to one, the two particles will naturally arrange themselves at opposite poles of that to which they unite. If they be three, they might be arranged with regularity at the angles of an equilateral triangle, in a great circle surrounding the single spherule; but in this arrangement, for want of similar matter at the poles of this circle, the equilibrium would be unstable, and would be liable to be deranged by the slightest force of adjacent combinations; but, when the number of one set of particles exceeds in the proportion of four to one, then, on the contrary, a stable equilibrium may again take place, if the four particles are situated at the angles of the four equilateral triangles composing a regular tetrahedron.

1740. 'But as this geometrical arrangement of the primary elements of matter is altogether conjectural, and must rely for its confirmation or rejection upon future enquiry, I am desirous that it should not be confounded with the results of the facts and observations related above, which are sufficiently distinct and satisfactory with respect to the existence of the law of simple multiples. It is perhaps too much to hope, that the geometrical arrangement of primary particles will ever be perfectly known; since, even admitting that a very small number of these atoms combining together would have a tendency to arrange themselves in the manner I have imagined, yet, until it is ascertained how small a proportion the primary particles themselves bear to the interval between them, it may be supposed that surrounding combinations, although themselves analogous, might disturb this arrangement; and, in that case, the effect of such interference must also be taken into the account, before any theory of chemical combination can be rendered complete.'

1741. I am not aware that any chemist has adduced experimental evidence, to prove that a 'stable equilibrium may again take place, if the four particles are situated at the angles of the four equilateral triangles composing a regular tetrahedron.' I have, therefore, much pleasure in referring to my researches on the constitution of liquid nitric acid, as unfolding a striking confirmation of Dr. Wollaston's true philosophy of atomical combination. When I wrote the following sentence, I had no recollection whatever of Dr. Wollaston's profound speculations on tetrahedral arrangement.—'We perceive, that the liquid acid of 1·420, composed of 4 primes of water + 1 of dry acid, possesses the greatest power of resisting the influence of temperature to change its state. It requires the maximum heat to boil it, when it distils unchanged; and the maximum cold to effect its congelation.

1742. Here we have a fine example of the stability of equilibrium, introduced by the combination of four atoms with one. The discovery which I had also the good fortune to make with regard to the constitution of aqueous sulphuric acid, that the maximum condensation occurred when one atom of the real acid was combined with three atoms of water, is equally consonant to Dr. Wollaston's views. 'But in this arrangement,' says Dr. Wollaston, 'for want of similar matter at the poles of this circle, the equilibrium would be unstable, and would be liable to be deranged by the slightest force of adjacent combinations.' Compare with this remark the following sentence from my paper on sulphuric acid, as published in the Journal of Science, October 1817:—'The terms of dilution are, like logarithms, a series of numbers in arithmetical progression, corresponding to another series, namely, the specific gravities, in geometrical progression. For, a little distance on both sides of the point of greatest condensation, the series converges with accelerated velocity, whence the 10 or 12 terms on either hand deviate a little from experiment.' Page 126. Or, in other words, a small addition of water or of acid to the above atomic group, produces a great change on the degree of condensation; which accords with the position 'that the equilibrium would be liable to be deranged by the slightest force of adjacent combinations.'

1743. While considering this part of Dr. Wollaston's important paper, let me advert to the curious facts pointed out in the article Nitric Acid, relative to the compound of one atom of dry acid, and seven atoms of water. In my paper on the subject, published in the eighth number of the Journal of Science, I showed that this liquid combination was accompanied with the greatest condensation of volume, and the greatest disengagement of heat. In composing this Dictionary, I calculated, for the first time, the atomical constitution of the nitric acids employed by Mr. Cavendish for congelation; and found with great satisfaction, that the same proportion which had exhibited, in my experiments, the most intense reciprocal action, as was indicated both by the aggregation of particles and production of heat, was likewise that which most favored solidification. Such acid congeals at — 2°; but, when either stronger or weaker, it requires a much lower temperature for that effect.

1744. iii. The next capital discovery in multiple proportions, was made by M. Gay Lussac, in 1808, and published by him in the second volume of the Memoires d'Arcueil. After detailing a series of fine experiments, he deduces the following important inferences:—'Thus it evidently appears, that all gases, in their mutual action, uniformly combine in the most simple proportions; and we have seen, in fact, in all the preceding examples, that the ratio of their union is that of 1 to 1, of 1 to 2, or of 1 to 3, by volume. It is important to observe, that when we consider the weights, there is no simple and definite relation between the elements of a first combination; it is only when there is a second between these same elements, that the new proportion of that body which has been added is a multiple of the first. Gases, on the contrary, in such proportions as can combine, give rise always to compounds whose elements are in volume, multiples the one of the other.

1745. 'Not only do the gases combine in very simple proportions, as we have just seen, but moreover, the apparent contraction of volume which they experience by combination, has likewise a simple relation with the volume of the gases, or rather with the volume of one of them.'

1746. By supposing the contraction of volume of the two gaseous constituents of water to be only equal to the whole volume of oxygen added, he found the ratio of the density of steam to be to that of air as 10 to 16; a computed result in exact correspondence with the experimental result lately obtained in an independent method by the same excellent philosopher. 'Ammoniacal gas is composed in volume,' says he, 'of 3 parts of hydrogen and 1 of azote, and its density, compared to that of air, is 0·596; but, if we suppose the apparent contraction to be one-half of the total volume, we find 0·594 for its density. Thus it is demonstrated, by this nearly perfect accordance, that the apparent contraction of its elements is precisely one-half of the total volume, or rather double the volume of azote.' M. Gay Lussac subjoins to his beautiful memoir a table of gaseous combination, which, with some modifications derived from subsequent researches, will be inserted under the article Gas.

1747. The same volume of the Memoires presents another important discovery of M. Gay Lussac, on the subject of equivalent proportions. It is entitled, On the Relation which exists between the Oxidation of Metals, and their Capacity of Saturation for the Acids. He here proves, by a series of experiments, that the quantity of acid which the different metallic oxides require for saturation, is in the direct ratio of the quantity of oxygen which they respectively contain. 'I have arrived at this principle,' says he, 'not by the comparison of the known proportions of the metallic salts, which are in general too inexact to enable us to recognise this law, but by observing the mutual precipitation of the metals from their solutions in acids.

1748. When we precipitate a solution of acetate of lead by a plate of zinc, there is formed a beautiful vegetation known under the name of the Tree of Saturn; and which arises from the reduction of the lead by a galvanic process, as was first shown by Silvester and Grotthus. We obtain at the same time a solution of acetate of zinc, equally neutral with that of the lead, and entirely exempt from this last metal. No hydrogen, or almost none, is disengaged during the precipitation; which proves, that the whole oxygen necessary to the zinc, for its becoming dissolved and saturating the acid, has been furnished to it by the lead.

1749. If we put into a solution of sulphate of copper, slightly acidulous, bright iron turnings in excess, the copper is almost instantly precipitated; the temperature rises, and no gas is disengaged. The sulphate of iron which we obtain, is that in which the oxide is at a minimum, and its acidity is exactly the same as that of the sulphate of copper employed.

1750. We obtain similar results by decomposing the acetate of copper by lead, especially with the aid of heat. But since the zinc precipitates the lead from its acetic solution, we may conclude, that it would also precipitate copper from its combination with the acetic acid. Experience is here in perfect accordance with theory.

1751. We know with what facility copper precipitates silver from its nitric solution. All the oxygen which it needs for its solution is furnished to it by the oxide of silver; for no gas is disengaged, and the acidity is unchanged. The same thing happens with copper in regard to nitrate of mercury, and to cobalt in regard to nitrate of silver. In these last examples, as in the preceding, the precipitating metal finds, in the oxide of the metal which it precipitates, all the oxygen which is necessary to it for its oxidisement, and for neutralising to the same degree the acid of the solution.

1752. These incontestable facts naturally conduct to the principle announced above, that the acid in the metallic salts is directly proportional to the oxygen in their oxides. In the precipitation of one metal by another, the quantity of oxygen in each oxide remains the same, and consequently the larger dose of oxygen the precipitating metal takes, the less metal will it precipitate.

1753. M. Gay Lussac next proceeds to show, with regard to the same metals at their different stages of oxidisement, that they require of acid a quantity precisely proportional to the quantity of oxygen they may contain; or that the acid in the salts is exactly proportional to the oxygen of the oxides. A very important result of this law is, the ready means it affords of determining the proportions of all the metallic salts. The proportions of one metallic salt, and the oxidation of the metals being given, we may determine those of all the salts of the same genus; or the proportions of acid, and of oxide, of all the metallic salts, and the oxidation of a single metal being given, we can calculate the oxidation of all the rest. Since the peroxides require most acid, we can easily understand how the salts containing them should be, in general, more soluble than those with the protoxide.

1754. M. Gay Lussac concludes his memoir with this observation. When we precipitate a metallic solution, by sulphureted hydrogen, either alone or combined with an alkaline base, we obtain a sulphuret or a metallic hydrosulphuret. In the first case, the hydrogen of the sulphureted hydrogen combines with all the oxygen of the oxide, and the sulphur forms a sulphuret with the metal: in the second case, the sulphureted hydrogen combines directly with the oxide, without being decomposed; and its proportion is such that there is sufficient hydrogen to saturate all the oxygen of the oxide. The quantity of hydrogen neutralised, or capable of being so, depends therefore on the oxidation of the metal, as well as the quantity of the sulphur which can combine with it. Of consequence, the same metal forms as many distinct sulphurets, as it is susceptible of distinct stages of oxidation in its acid solutions. And, as these degrees of oxidation are fixed, we may also obtain sulphurets, of definite proportions, which we can easily determine, according to the quantity of oxygen to each metal, and the proportions of sulphureted hydrogen.

1755. The next chemist who contributed essentially to the improvement of the equivalent ratios of chemical bodies, was Berzelius. By an astonishing number of analyses, executed for the most part with remarkable precision, he enabled chemical philosophers to fix, with corresponding accuracy, the equivalent ratios reduced to their lowest terms. He himself took oxygen as the unit of proportion.

1756. The results of all this emulous cultivation were combined, and illustrated with original researches, by Sir H. Davy, in his Elements of Chemical Philosophy published in 1812. In this system of truths, which will never become obsolete, we find the claims of Mr. Higgins to the discovery of the atomic theory justly advocated.

1757. But what peculiarly characterises this chemical work, is the sound antihypothetical doctrines which it inculcates on chemical combination. 'Mr. Higgins,' says Sir H., 'has supposed that water is composed of one particle of oxygen and one of hydrogen, and Mr. Dalton of an atom each; but, in the doctrine of proportions derived from facts, it is not necessary to consider the combining bodies, either as composed of indivisible particles, or even as always united, one and one, or one and two, or one and three proportions. Cases will be hereafter pointed out, in which the ratios are very different; and at present, as we have no means whatever of judging either of the relative numbers, figures, or weights, of those particles of bodies which are not in contact, our numerical expressions ought to relate only to the results of experiments.'

1758. He conceives that the calculations will be much expedited, and the formulæ rendered more simple, by considering the smallest proportion of any combining body, namely, that of hydrogen, as the integer. This radical proportion of hydrogen, is the πρωτη ὕλη of the ancient philosophers.

1759. It has been objected by some, to our assuming hydrogen as the unit, that the numbers representing the metals would become inconveniently large. But this could never be urged by any person acquainted with the theory of numbers. For in what respect is it more convenient to reckon barium 8·75 on the atomic scale, or 8·75 × 16 = 140 on Sir H. Davy's scale of experiment; or is it any advantage to name, with Dr. Thomson, tin = 7·375, or to call it 118, on the plan of the English philosopher? If the combining ratios of all bodies be multiples of hydrogen, as is probable, why not take hydrogen as the unit? I think this question will not be answered in the negative, by those who practise the reduction of chemical proportions. The defenders of the Daltonian hypothesis, that water consists of one atom oxygen to one atom hydrogen, may refer to Dr. Wollaston's scale, as an thority for taking oxygen as the unit. But that admirable instrument, which has at once subjected thousands of chemical combinations to all the despatch and precision of logometric calculation, is actually better adapted to the hydrogen unit than to the oxygen. For if we slide down the middle rule, till 10 on *it* stand opposite to 10 hydrogen on the left side, everything on the scale is given in accordance with Sir H. Davy's system of primary proportions, and M. Gay Lussac's theory of gaseous combination. This valuable concurrence, as is well pointed out by Dr. Prout, we lose by adopting the volume of oxygen as radix.

1760. In the first part of the Phil. Trans. for 1814, appeared Dr. Wollaston's description of his scale of chemical equivalents,—an instrument which has contributed more to facilitate the general study and practice of chemistry than any other invention of man. His paper is further valuable, in presenting a series of numbers denoting the relative primary proportions, or weights of the atoms of the principal chemical bodies, both simple and compound, determined with singular sagacity, from a general review of the most exact analyses of other chemists, as well as his own.

1761. The list of substances which he has estimated, are arranged on one or other side of a scale of numbers, in the order of their relative weights, and at such distances from each other, according to their weights, that the series of numbers placed on a sliding scale can at pleasure be moved, so that any number expressing the weight of a compound, may be brought to correspond with the place of that compound in the adjacent column. The arrangement is then such, that the weight of any ingredient in its composition, of any re-agent to be employed, or precipitate that might be obtained in its analysis, will be found opposite the point at which its respective name is placed.

1762. If the slider be drawn upwards, till 100 corresponds to muriate of soda, the scale will then show how much of each substance contained in the table is equivalent to 100 common salt. It shows, with regard to the different views of this salt, that it contains 46·6 dry muriatic acid, and 53·4 of soda, or 39·8 sodium, and 13·6 oxygen; or, if viewed as chloride of sodium, that it contains 60·2 chlorine, and 39·8 sodium. With respect to re-agents, it may be seen, that 283 nitrate of lead, containing 191 of litharge, employed to separate the muriatic acid, would yield a precipitate of 237 muriate of lead, and that there would then remain in solution nearly 146 nitrate of soda. It may at the same time be seen, that the acid in this quantity of salt would serve to make 232 corrosive sublimate, containing 185·5 red oxide of mercury; or make 91·5 muriate of ammonia, composed of 62 muriatic gas (or hydromuriatic acid), and 29·5 ammonia. The scale shows also, that for the purpose of obtaining the whole of the acid in distillation, the quantity of oil of vitriol required is nearly 64, and that the residuum of this distillation would be 122 dry sulphate of soda, from which might be obtained, by crystallisation, 277 of Glauber salt, containing 155 water of crystallisation. These, and many more such answers, appear at once, by bare inspection, as soon as the weight of any substance intended for examination is made, by motion of the slider, correctly to correspond with its place in the adjacent column. Now, surely, the accurate and immediate solution of so many important practical problems, is an incalculable benefit conferred on the chemist.

1763. With regard to the method of laying down the divisions of this scale, those who are accustomed to the use of other sliding rules, and are practically acquainted with their properties, will recognise upon the slider itself, the common Gunter's line of numbers (as it is called), and will be satisfied that the results which it gives are the same that would be obtained by arithmetical computation.

1764. Those who are acquainted with the doctrine of ratios, and with the use of logarithms as measures of ratios, will understand the principle on which this scale is founded, and will not need to be told, that all the divisions are logometric; consequently, that the mechanical addition and subtraction of ratios here performed by juxtaposition, correspond in effect to the multiplication and division of the numbers, by which those ratios are expressed in common arithmetical notation.

1765. In his Essay on the cause of Chemical Proportions, Berzelius proposed a system of signs, to denote atomical combinations, which it may be proper briefly to explain. This sign is the initial letter, and by itself always expresses one atom, volume, or prime of the substance. When it is necessary to indicate several volumes, or primes, it is done by prefixing the number; for example, the cuprous oxide, or protoxide of copper, is composed of a prime of oxygen and a prime of metal; its sign is therefore $Cu + O$ The cupric oxide, or deutoxide of copper, is composed of 1 prime metal, and 2 primes oxygen; therefore its sign is $Cu + 2\,O$. In like manner the sign for sulphuric acid is $S + 3\,O$; for carbonic acid, $C + 2\,O$; for water, $2\,H + O$, &c.

1766. When we express a compound prime of the first order, or binary, we throw away the +, and place the number of primes above the letter, as the index or exponent is placed in arithmetic. For example, $CuO + SO^3 =$ sulphate of copper; $CuO^2 + 2SO^3 =$ bi-deutosulphate of copper, or persulphate. These formulæ have this advantage, that if we take away the oxygen, we see at once the ratio between the radicals. As to the primes of the second order, or ternary compounds, it is but rarely of any advantage to express them by formulæ, as one prime; but if we wish to express them in that way, we may do it by using the parenthesis, as is done in algebraic formulæ: for example, according to Berzelius, alum is composed of 3 primes of sulphate of alumina, and 1 of sulphate of potash. Its symbol is $3\,(Al\,O^3 + 2SO^3) + (Po^2 + 2SO^3)$. The prime of ammenia is 3HN; viz. 3 primes hydrogen + 1 nitrogen. We shall use some of these abbreviations in our table of equivalent primes, at the article SALT.

1767. To reduce analytical results, as usually given for 100 parts, to the equivalent prime ratios, or, in hypothetical language, to the atomic proportions, is now a problem of perpetual recurrence, with which students are perplexed, as no rule has been given for its ready solution. We shall here explain it in detail.

1768. As in all reasoning we must proceed from what is known or determinate, to what is unknown or indeterminate, so, in every analysis, there must be one ingredient whose prime equivalent is well ascertained. This is employed as the common measure, and the proportions of the rest are compared to it. Let us take, for instance, Sir H. Davy's analysis of fluate of lime, to determine the unknown number that should denote the prime of fluoric acid. We know, first of all, that 2 primes of oxygen = 2, combine with 1 of carbon = 0·75, to form the compound prime 2·75 of carbonic acid. We likewise know that carbonate of lime consists of 43·6 carbonic acid + 54·4 lime. We therefore make this proportion to determine the prime equivalent of lime.

i. 43·6 : 54·4 :: 2·75 : 3·56 = prime of lime.

ii. We know that 100 parts of dry sulphate of lime consists of 41·6 lime and 58·4 acid. Hence, to find the prime of sulphuric acid, we make this proportion :—

41·6 : 58·4 :: 3·56 : 5 = prime of sulphuric acid.

iii. Sir H. Davy obtained from 100 grains of fluor spar in powder, acted on with repeated quantities of sulphuric acid and ignited, 175·2 grains of sulphate of lime. Now, since 100 grains of sulphate of lime contain, as above, 41·6 of lime, we have this proportion :—

100 : 41·6 :: 175·2 : 72·88 = lime, corresponding to 175·2 grains of sulphate, and which previously existed in the 100 grains of fluor spar. If from 100 we subtract 72·88, the difference 27·12 is the fluric acid, or the other ingredient of the fluor, which saturated the lime. Now to find its prime equivalent we say,

72·88 : 3·56 :: 27·12 : 1·325 = the prime or atom of fluoric acid from Sir H. Davy's experiment.

1769. We shall give another example, derived from a more complex subject.

1770. M. Vauquelin found that 33 parts of lime, saturated with sorbic acid, and carefully dried, weighed 100 grains. Hence the difference, 67 grains, was acid. To find its equivalent prime, we say,

As 33 : 67 :: 3·56 = the prime of lime : 7·2 = the prime of the acid. But as he brought it to absolute neutrality, by a small portion of potash, we may take 7·5 for the prime.

1771. M. Vauquelin subjected the acid, as it exists in the dry sorbates of lead and copper, to igneous analysis; and obtained the following results.—

Hydrogen	16·8
Carbon	28·3
Oxygen	54·9
	100·0

1772. Now we must find such an assemblage of the primes or atoms of these elements as will form a sum total of 7·5, and at the same time be to each other in the above proportions. The following very simple rule will give a ready approximation; and, with a common sliding scale, it may be worked by inspection.

1773. Multiply each proportion per cent. by the compound prime, and compare the products with the multiples of the constituent primes. You can then estimate the number of each prime requisite to compose the whole. Thus,

			Theory.	Experiment.
0·168 × 7·5 = 1·2600 or	10 hydrogen	= 1·25	16·7	16·8
0·283 × 7·5 = 2·1225	3 carbon	= 2·25	30·0	28·3
0·549 × 7·5 = 4·1175	4 oxygen	= 4·00	53·3	54·9
		7·50	100·0	100·0

1774. The differences between these theoretical and experimental proportions, are probably within the limits of the errors of the latter in the present state of analysis.

1775. If, on Dr. Wollaston's scale, we mark with a type or pen 2h, 3h, &c. up to 10h; 2c, 3c, 4c, 5c; and 2n, 3n, 4n; respectively opposite to twice, thrice, &c. the atoms of hydrogen, carbon, and nitrogen, as is already done for oxygen (with the exception of the fourth, where copper stands), we shall then have ready approximations to the prime components, by inspection of the scale. Move the sliding part so that one of the quantities per cent. may stand opposite the nearest estimate of a multiple prime of that constituent. Thus we know that hydrogen, carbon, and oxygen, bear the relation to each other of 1, 6, 8; and, of course, the latter two that of 3 to 4. But 54·9 oxygen, being more than one-half of 100, the weight of oxygen in the compound prime is more than the half of 7·5, and therefore points to 4. Place 54·9 opposite 4 oxygen (where copper stands), we shall find 18 opposite 10 hydrogen, and 30·7 opposite 3 carbon. Here we see the proportions of carbon and hydrogen are both greater than by Vauquelin's analysis. Try 51 opposite 4 oxygen, then opposite 3 carbon we have 28·7, and opposite 10 hydrogen 16·9. The proportions I have calculated arithmetically, above, seem somewhat better approximations; they were deduced from hydrogen 0·125, and carbon 0·75, instead of 0·132 and 0·754, as on the scale.

1776. If the weight of the compound prime is not given, then we must proceed to estimate the nearest prime proportions, after inspection of those per cent. The scale may be used with advantage, as just now explained.

1777. The following case has been reckoned difficult of solution, and has been involved in an algebraic formula. Let us suppose a vegetable acid, containing combined water, whose prime equivalent is to be determined by experiment. A crystallised salt is made with it, for example, and a determinate quantity of soda. Suppose the alkali to form twenty-six per cent. of the salt.

s water and acid. Dissolve 100 grains them to an indefinite quantity of the f any salt, with whose base the vegeta- orms an insoluble compound. Dry and s precipitate. Without decomposing we have sufficient data for determining equivalent of the real acid. We make rtion:—As the weight of soda is to its uivalent, so is the weight of the pre- the prime of the compound. Suppose s of an insoluble salt of lead to have ned; then 26 : 3·95 :: 148 : 22·1 = of the salt of lead. From this, if we e weight of the prime equivalent of ead = 14, we have 8·1 for the prime of the acid. And the crystallised salt consisted of,

Dry acid	53·3
Soda	26·0
Water	20·7
	100·0

As the above numbers were assumed arithmetical illustration, the water is ally expressed. Indeed the problem the acid prime does not require the either dried or weighed. A solution ice. Saturate a known weight of al- n unknown quantity of the crystallised ld this neutral solution to a redundant f solution of nitrate of lead. Wash, eigh the insoluble precipitate, and ap- ove rule.

here are three systems of equivalent t present employed: 1st, That having oxygen as the radix; 2nd, that having one volume of hydrogen as the radix; 3rd, that having two volumes of hydrogen as the radix, on the Daltonian supposition that two volumes of hydrogen contain the same number of atoms as one volume of oxygen. As this hypothesis is destitute of proof, it evidently should be discarded from physical science. Since the volume of hydrogen is equal in weight to 1-16th the weight of the volume of oxygen, the former two systems are mutually convertible, by multiplying the number in the oxygen ratio by sixteen, or 4 × 4, to obtain the number in the hydrogen scale; and this is reconverted by the inverse operation, namely, dividing by sixteen, or by 4 × 4.

1780. Dr. Wollaston's scale, and Sir H. Davy's proportional numbers, are adapted to the idea that water is a compound of 1 hydrogen + 7·5 oxygen by weight, or 15 + 1 by volume. Their mutual conversion is therefore very easy; for if we add to Dr. Wollaston's number its half, the sum is Sir H. Davy's; and, of course, if we subtract from the number of the latter its third, the remainder is Dr. Wollaston's number. There is one very frequent variation in the weights of the primes among the best writers, namely, doubling or halving the number. This difference is occasioned generally by an uncertainty about the first term or proportion in which the body combines with oxygen; some chemists reckoning that a protoxide which others consider a deutoxide. Thus Sir H. Davy gives 103 as the number representing iron; from which, if we deduct $\frac{103}{3}$ = 34·3, the remainder 68·7 is nearly double of 34·5, the number of Dr. Wollaston.

I.—Dr. Wollaston's Numerical Table of Chemical Equivalents.

Wollaston's numbers represent the weights of the atoms of bodies, oxygen being called ten.

gen	1·32
n	10·00
	11·32
n	7·54
nic acid (20 oxygen)	27·54
ur	20·00
uric acid (30 oxygen)	50·00
horus	17·40
horic acid (20 oxygen)	37·40
or nitrogen	17·54
acid (50 oxygen)	67·54
tic acid, dry	34·10
uriatic acid (10 oxygen)	44·10
ne 44·10 + 1·32 hydrogen	
muriatic acid gas	45·42
acid	47·00
nia	21·50
	39·10
n (above—10 oxygen,)	29·10
a	49·10
ium (above — 10 oxygen)	49·10
sia	24·60
	35·46
m (above — 10 oxygen)	25·46
ites	69·00
s	97·00

26. Iron	34·50
Black oxide (10 oxygen)	44·50
Red oxide (15 oxygen)	49·50
27. Copper	40·00
Black oxide (10 oxygen)	50·00
28. Zinc	41·00
Oxide (10 oxygen)	51·00
29. Mercury	125·50
Red oxide (10 oxygen)	135·50
Black oxide (125·5 mercury)	261·00
30. Lead	129·50
Litharge (10 oxygen)	139·50
31. Silver	135·00
Oxide (10 oxygen)	145·00
32. Sub-carbonate of ammonia	49·00
Bi-carbonate (27·5 carbonic acid)	76·50
33. Sub-carbonate of soda	66·60
Bi-carbonate (27·5 C. A. + 11·3 water)	105·50
34. Sub-carbonate of potash	86·00
Bi-carbonate (27·5 C. A. + 11·3 water)	125·50
35. Carbonate of lime	63·00
36. ——— barytes	124·50
37. ——— lead	167·00
38. Sulphuric acid, dry	50·00

TABLE IV.—*Continued.*

Combinations of Frigorific Mixtures.

MIXTURES.		Thermometer sinks.	Deg. of cold produced.
Snow Muriate of lime	3 parts 4	From + 20° to — 48°	68
Snow Muriate of lime	3 parts 4	From + 10° to — 54°	64
Snow Muriate of lime	2 parts 3	From — 15° to — 68°	53
Snow Crystallised muriate of lime	1 part 2	From 0° to — 66°	66
Snow Crystallised muriate of lime	1 part 3	From — 40° to — 73°	33
Snow Diluted sulphuric acid	8 parts 10	From — 68° to — 91°	23

N. B.—The materials in the first column are to be cooled, previously to mixing, to the temperature required, by mixtures taken from either of the preceding tables.

V.—TABLE OF CAPACITIES OF DIFFERENT SUBSTANCES FOR CALORIC.

In this Table, the authorities are marked by the initials of the respective authors' names.—C. Crawford: K. Kirwan: Ir. Irvine: G. Gadolin: L. Lavoisier: W. Wilcke: M. Meyer.

GASES.

1. Hydrogen gas	21·4000	C.
2. Oxygen gas	4·7490	—
3. Atmospheric air	1·7900	—
4. Aqueous vapour	1·5500	C.
5. Carbonic acid gas	1·6454	—
6. Nitrogen gas	·7936	—

LIQUIDS.

7. Solution of carbonate of ammonia	1·8510	K.
8. Solution of brown sugar	1·0760	—
9. Alcohol (15·44)	1·0860	—
10. Arterial blood	1·0300	C.
11. Water	1·0000	
12. Cow's milk	·9999	C.
13. Sulphuret of ammonia	·9940	K.
14. Solution of muriate of soda, 1 in 10 of water	·9360	G.
15. Alcohol (9·44)	·9300	Ir.
16. Sulphuric acid, diluted with 10 of water	·9250	G.
17. Solution of muriate of soda in 6·4 of water	·9050	G.
18. Venous blood	·8928	C.
19. Sulphuric acid, with 5 parts of water	·8760	G.
20. Solution of muriate of soda in 5 of water	·8680	—
21. Nitric acid (39)	·8440	K.
22. Solution of sulphate of magnesia in 2 of water	·8440	—
23. Solution of muriate of soda in 8 of water	·8320	
24. Solution of muriate of soda in 3·33 of water	·8200	G.
25. Solution of nitrate of potash in 8 of water	·8167	L.
26. Solution of muriate of soda in 2·8 of water	·8020	G.
27. Solution of muriate of ammonia in 1·5 of water	·7980	K.
28. Solution of muriate of soda saturated, or in 2·69 of water	·7930	G.
29. Solution of supertartrate of potash in 237·3 of water	·7650	K.
30. Solution of carbonate of potash	·7590	—
31. Colourless sulphuric acid (51·55,56,57)	·7580	—
32. Sulphuric acid, with 2 parts of water	·7430	G.
33. Solution of sulphate of iron in 2·5 of water	·7340	K.
34. Solution of sulphate of soda in 2·9 of water	·7280	—
35. Olive oil	·7100	—
36. Water of ammonia, sp. gr. 0·997	·7080	—
37. Muriatic acid, sp. gr. 1·122	·6800	—
38. Sulphuric acid, 4 parts with 5 of water	·6631	L.
39. Nitric acid, sp. gr. 1·29895	·6613	—
40. Solution of alum in 4·45 of water	·6490	M.
41. Mixture of nitric acid with lime, 9½ to 1	·6189	L.
42. Sulphuric acid, with an equal weight of water	·6050	G.
43. Sulphuric acid, 4 parts with 3 of water	·6031	L.
44. Alcohol (9·15)	·6021	C.
45. Nitrous acid, sp. gr. 1·35	·5760	K.
46. Linseed oil	·5280	—

LIQUIDS.—*Continued.*

ti oil (53)	·5000	C.
acid, with half of	·5000	G.
rpentine (52)	·4720	K.
acid, with ½ of water	·4420	G.
acid (31·55,56,57)	·4290	C.
rpentine (49)	·4000	Ir.
ti oil (47)	·3990	K.
vinegar	·3870	—

55.	Sulphuric acid, concentrated and colorless (31)	·3390	G.
56.	Sulphuric acid, sp. gr. 1·87058	·3345	L.
57.	Sulphuric acid (31·51)	·3330	Ir.
58.	Spermaceti melted	·3200	—
59.	Quicksilver, sp. gr. 13·30	·0330	K.
60.	Quicksilver	·0290	L.
61.	———	·0290	W.
62.	———	·0280	Ir.

SOLIDS.

	·9000	K.
	·8000	Ir.
with the hair	·7870	C.
lungs	·7690	—
an ox	·7400	—
ir wood	·6500	M.
ee wood	·2600	—
fir wood	·6000	—
ne wood	·5800	—
ree wood	·5700	—
ood	·5300	M.
eaved oak	·5100	—
d	·5100	—
e wood	·5000	—
	·5060	C.
eans	·5020	—
the pine-tree	·5000	—
	·4920	—
	·4900	M.
m wood	·4800	—
ood	·4800	—
	4770	C.
	·4700	M.
ax	·4500	G.
ulated oak wood	·4500	M.
ee	·4400	—
wood	·4300	—
ne with water, in the pro- of 16 to 9	·4391	L.
	·4210	C.
	·4160	—
l of birch wood (99)	·3950	G.
te of magnesia	·3790	—
blue	·3300	—
ne saturated with water ied	·2800	G.
	·2777	C.
l gypsum	·2640	G.
l (93)	·2631	C.
108)	·2564	—
iron	·2500	—
lay	·2410	G.
xide of antimony d	·2272	C.
f copper	·2272	—
me (107)	·2239	—
of soda in crystals	·2260	G.
me (105)	·2168	L.
100)	·2070	G.
glass	·2000	Ir.
p. gr. 2·648	·1950	W.
-ware	·1950	K.
glass without lead	·1929	L.

113.	Cinders	·1923	C.
114.	Sulphur	·1890	Ir.
115.	Ashes of cinders	·1855	C.
116.	White glass, sp. gr. 2·386	·1870	W.
117.	White clay burnt	·1850	G.
118.	Black lead	·1830	—
119.	Sulphur	·1830	K.
120.	Oxide of antimony, nearly free of air	·1666	C.
121.	Rust of iron, do. do.	·1666	—
122.	Ashes of elm wood	·1402	—
123.	Iron (125·127,128·132)	·1450	Ir.
124.	Oxide of zinc, nearly freed from air	·1369	C.
125.	White cast iron	·1320	G.
126.	White oxide of arsenic	·1260	—
127.	Iron (123·132)	·1269	C.
128.	Iron, sp. gr. 7876	·1260	W.
129.	Cast iron abounding in plumbago	·1240	G.
130.	Hardened steel	·1230	—
131.	Steel softened by fire	·1200	—
132.	Soft bar iron, sp. gr. 7·724	·1190	—
133.	Brass, sp. gr. 8·356 (135)	·1160	W.
134.	Copper, sp. gr. 8·785 (136)	·1140	W.
135.	Brass (133)	·1123	C.
136.	Copper (133)	·1111	—
137.	Sheet iron	·1099	L.
138.	Zinc, sp. gr. 7·154 (143)	·1020	W.
139.	White oxide of tin, nearly free of air	·990	C.
140.	Cast pure copper, heated between charcoal, and cooled slowly, sp. gr. 7·907	·990	G.
141.	Hammered copper, sp. gr. 9·150	·970	G.
142.	Oxide of tin	·960	K.
143.	Zinc (198)	·943	C.
144.	Ashes of charcoal	·909	—
145.	Sublimated arsenic	·840	G.
146.	Silver, sp. gr. 10·001	·820	W.
147.	Tin (152)	·704	C.
148.	Yellow oxide of lead	·680	—
149.	White lead	·670	G.
150.	Antimony	·645	—
151.	Antimony, sp. gr. 6·107	·630	W.
152.	Tin, sp. gr. 7380 (147)	·600	—
153.	Red oxide of lead	·590	G.
154.	Gold, sp. gr. 19·04	·500	W.
155.	Vitrified oxide of lead	·590	G.
156.	Bismuth, sp. gr. 9·861	·430	W.
157.	Lead, sp. gr. 11·45	·420	—
158.	——	·352	C

capacities of the gases are all erroneous; and those of the other bodies are probably ncorrect.

TABLE VI.—CORRESPONDENCE OF THE THERMOMETERS OF FAHRENHEIT AND REAUMUR, AND THAT OF CELSIUS OR THE CENTIGRADE THERMOMETER OF THE MODERN FRENCH CHEMISTS.

Fahr.	Reaum.	Celsi.	Fahr.	Reaum.	Celsi.	Fahr.	Reaum.	Celsi.	Fahr.	Reaum.	Celsi.
212	80	100	148	51·5	64·4	85	23·5	29·4	22	4·4	5·5
211	79·5	99·4	147	51·1	63·8	84	23·1	28·8	21	4·8	6·1
210	79·1	98·8	146	50·6	63·3	83	22·6	28·3	20	5·3	6·6
209	78·6	98·3	145	50·2	62·7	82	22·2	27·7	19	5·7	7·2
208	78·2	97·7	144	49·7	62·2	81	21·7	27·2	18	6·2	7·7
207	77·7	97·2	143	49·3	61·6	80	21·3	26·6	17	6·6	8·3
206	77·3	96·6	142	48·8	61·1	79	20·8	26·1	16	7·1	8·8
205	76·8	96·1	141	48·4	60·5	78	20·4	25·5	15	7·5	9·4
204	76·4	95·5	140	48	60	77	20	25	14	8	10
203	76	95	139	47·5	59·4	76	19·5	24·4	13	8·4	10·5
202	75·5	94·4	138	41·1	58·8	75	19·1	23·8	12	8·8	11·1
201	75·1	93·8	137	46·6	58·3	74	18·6	23·3	11	9·3	11·6
200	74·6	93·3	136	46·2	57·7	73	18·2	22·7	10	9·7	12·2
199	74·2	92·7	135	45·7	57·2	72	17·7	22·2	9	10·2	12·7
198	73·7	92·2	134	45·3	56·6	71	17·3	21·6	8	10·6	13·3
197	73·3	91·6	133	44·8	56·1	70	16·8	21·1	7	11·1	13·8
196	72·8	91·1	132	44·4	55·5	69	16·4	20·5	6	11·5	14·4
195	72·4	90·5	131	44	55	68	16	20	5	12	15
194	72	90	130	43·5	54·4	67	15·5	19·4	4	12·4	15·5
193	71·5	89·4	129	43·1	53·8	66	15·1	18·8	3	12·8	16·1
192	71·1	88·8	128	42·6	53·3	65	14·6	18·3	2	13·3	16·6
191	70·6	88·3	127	42·2	52·7	64	14·2	17·7	1	13·7	17·2
190	70·2	87·7	126	41·7	52·2	63	13·7	17·2	0	14·2	17·7
189	69·7	87·2	125	41·3	51·6	62	13·3	16·6	1	14·6	18·3
188	69·3	86·6	124	40·8	51·1	61	12·8	16·1	2	15·1	18·8
187	68·8	86·1	123	40·4	50·5	60	12·4	15·5	3	15·5	19·4
186	68·4	85·5	122	40	50	59	12	15	4	16	20
185	68	85	121	39·5	49·4	58	11·5	14·4	5	16·4	20·5
184	67·5	84·4	120	39·1	48·8	57	11·1	13·8	6	16·8	21·1
183	67·1	83·8	119	38·6	48·3	56	10·6	13·3	7	17·3	21·6
182	66·6	83·3	118	38·2	47·7	55	10·2	12·7	8	17·7	22·2
181	66·2	82·7	117	37·7	47·2	54	9·7	12·2	9	18·2	22·7
180	65·7	82·2	116	37·3	46·6	53	9·3	11·6	10	18·6	23·3
179	65·3	81·6	115	36·8	46·1	52	8·8	11·1	11	19·1	23·8
178	64·8	81·1	114	36·4	45·5	51	8·4	10·5	12	19·5	24·4
177	64·4	80·5	113	36	45	50	8	10	13	20	25
176	64	80	112	35·5	44·4	49	7·5	9·4	14	20·4	25·5
175	63·5	79·4	111	35·1	43·8	48	7·1	8·8	15	20·8	26·1
174	63·1	78·8	110	34·6	43·3	47	6·6	8·3	16	21·3	26·6
173	62·6	78·3	109	34·2	42·7	46	6·2	7·7	17	21·7	27·2
172	62·2	77·7	108	33·7	42·2	45	5·7	7·2	18	22·2	27·7
171	61·7	77·2	107	33·3	41·6	44	5·3	6·6	19	22·6	28·3
170	61·3	76·6	106	32·8	41·1	43	4·8	6·1	20	33·1	28·8
169	60·8	76·1	105	32·4	40·5	42	4·4	5·5	21	23·5	29·4
168	60·4	75·5	104	32	40	41	4	5	22	24	30
167	60	75	103	31·5	39·4	40	3·5	4·4	23	24·4	30·5
166	59·5	74·4	102	31·1	38·8	39	3·1	3·8	24	24·8	31·1
165	59·1	73·8	101	30·6	38·3	38	2·6	3·3	25	25·3	31·6
164	58·6	73·3	100	30·2	37·7	37	2·2	2·7	26	25·7	32·2
163	58·2	72·7	99	29·7	37·2	36	1·7	2·2	27	26·2	32·7
162	57·7	72·2	98	29·3	36·6	35	1·3	1·6	28	26·6	33·3
161	57·3	71·6	97	28·8	36·1	34	0·8	1·1	29	27·1	33·8
160	56·8	71·1	96	28·4	35·5	33	0·4	0·5	30	27·5	34·4
159	56·4	70·5	95	28	35	32	0	0	31	28·4	35
158	56	70	94	27·5	34·4	31	0·4	0·5	32	28	35·5
157	55·5	69·4	93	27·1	33·8	30	0·8	1·1	33	28·8	36·1
156	55·1	68·8	92	26·6	33·3	29	1·3	1·6	34	29·3	36·6
155	54·6	68·3	91	26·2	32·7	28	1·7	2·2	35	29·7	37·2
154	54·2	67·7	90	25·7	32·2	27	2·2	2·7	36	30·2	37·7
153	53·7	67·2	89	25·3	31·6	26	2·6	3·3	37	30·6	38·3
152	53·3	66·6	88	24·8	31·1	25	3·1	3·8	38	31·1	38·8
151	52·8	66·1	87	24·4	30·5	24	3·5	4·4	39	31·5	39·4
150	52·4	65·5	86	24	30	23	4	5	40	32	40
149	52	65									

[illegible] of the Vapour of Water in Inches of Mercury by Dr. Ure.

Force.	Temp.	Force.	Temp.	Force.	Temp.	Force.
21·100	242	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23·600	245	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25·900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Forces of the Vapours of Alcohol, Ether, Oil of Turpentine, Petroleum, or Naphtha, by Dr. Ure.

[illegible]	Alcohol sp. gr. ·813.		Petroleum.	
Force of Vapour.	Temp.	Force of Vapour.	Temp.	Force of Vapour.
[illegible]	[illegible]	[illegible]	316	30·00
[illegible]	[illegible]	[illegible]	320	31·70
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	214	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	264	[illegible]		

Oil of Turpentine.	
Temp.	Force of Vapour.
304	[illegible]
307·6	32·60
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	37·06
[illegible]	37·80
[illegible]	40·20
[illegible]	42·10
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	51·70
[illegible]	53·80
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	62·40

TABLE IX.—OF THE SOLUBILITY OF SOME SOLIDS IN WATER.

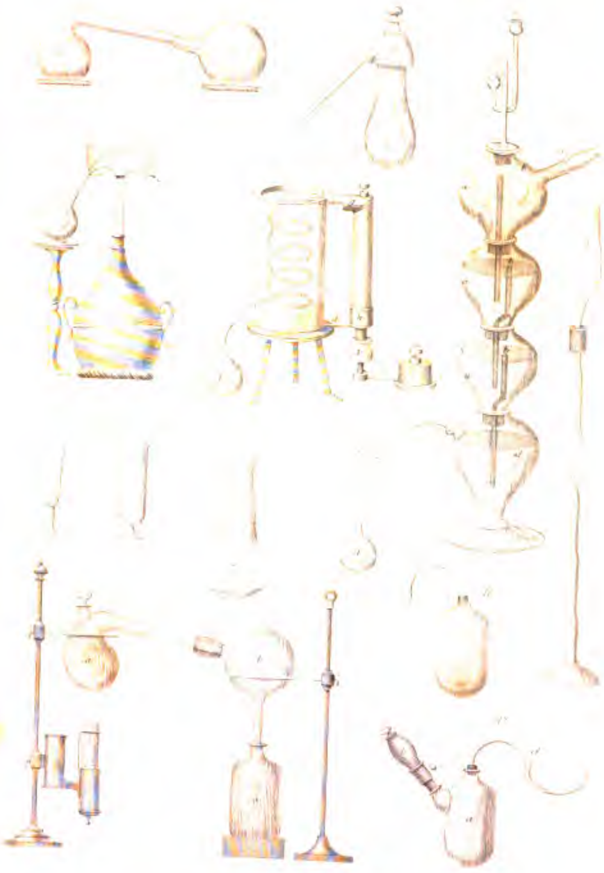
NAMES OF SALTS.	Solubility in 100 pts. water.	
	At 60°.	At 212°.
ACIDS.		
Arsenic . . .	150	
Benzoic . . .	0·208	4·17
Boracic . . .		2
Camphoric . .	1·04	8·3
Citric . . .	133	200
Gallic . . .	8·3	66
Mucic . . .	0·84	1·25
Molybdenic . .		0·1
Oxalic . . .	50	100
Suberic . . .	0·69	50
Succinic . . .	4	50
Tartaric . . .	Very soluble	
SALIFIABLE BASES.		
Barytes . . .	5	50
crystallised .	57	Unlimited
Lime . . .	0·2	
Potash . . .	Very soluble	
Soda . . .	ditto	
Strontites . .	0·6	
crystallised	1·9	50
SALTS.		
Acetate of ammonia .	Very soluble	
barytes .	ditto	
lime .	ditto	
magnesia .	ditto	
potash .	100	
soda .	Very soluble	
strontites .		40
Carbonate of ammonia	+30	100
barytes	Insoluble	
lime .	ditto	
magnesia	2	
potash .	25	83
soda .	50	+100
strontites	Insoluble	
Camphorate of ammonia	1	33
barytes	0·16	
lime .	0·5	
potash	33	+33
Citrate of soda . .	60	
lime . .	Insoluble	
Chlorate of barytes .	25	+25
mercury	25	
potash .	6	40
soda .	35	+35
Muriate of ammonia	33	100
barytes .	20	+20
Muriate of lead .	4·5	
lime .	200	
magnesia	100	
mercury .	5	50
potash .	33	
silver .	0·$\frac{1}{10}$	
soda .	35·42	[illegible]
strontites	150	Unlimited
Nitrate of ammonia .	50	200
barytes .	8	25
lime . .	400	
magnesia .	100	+100
potash .	14·25	100
soda . .	33	+100
strontites .	100	200
Oxalate of strontites	0·$\frac{1}{12}$	
Phosphate of ammonia	25	+25
barytes	0	0
lime .	0	0
magnesia	6·6	
potash .	Very soluble	
soda .	25	50
strontites	0	0
Phosphite of ammonia	50	+50
barytes .	0·$\frac{1}{4}$	
potash .	33	+33
Sulphate of ammonia	50	100
barytes .	0·002	
copper .	25	50
iron .	50	+100
lead .	0·$\frac{1}{12}$	
lime .	0·2	0·22
magnesia	100	133
potash .	6·25	20
soda .	37	125
strontites	0	0·02
Sulphite of ammonia	100	
lime .	0·125	
magnesia	5	
potash .	100	
soda .	25	100
Saccholactate of potash		12
soda		20
Sub-borate of soda, borax	8·4	16·8
Super-sulph. of potash	50	+100
alumina and potash (alum)	5	133
Super-oxalate of potash		10
tartrate of potash	1·$\frac{1}{2}$	3$\frac{1}{2}$
Tartrate of potash .	25	
& soda	20	
antimony and potash . . .	6·6	33

EXPLANATION OF PLATE I.

Fig. 1. RETORT AND RECEIVER. *a*, Retort. *b*, Receiver. The material is put into the body of the retort, heat applied, if necessary, and the vaporised matter passes into the receiver.

Fig. 2. GLASS ALEMBIC. *a*, Head. *b*, Body. *c*, Pipe for the receiver. An alembic differs from a still, inasmuch as it provides for the condensation of the vaporised material in itself, while a still has an apparatus appended for this purpose.

Fig. 3. KNIGHT'S MODIFICATION OF WOOLFE'S APPARATUS. *a*, *a*, *a*, Three vessels, each ground into the mouth of the one below it. *b*, *b*, *b*, Glass



London, Published by Thomas Tegg, 73 Cheapside.

J. Sharpe sculp.

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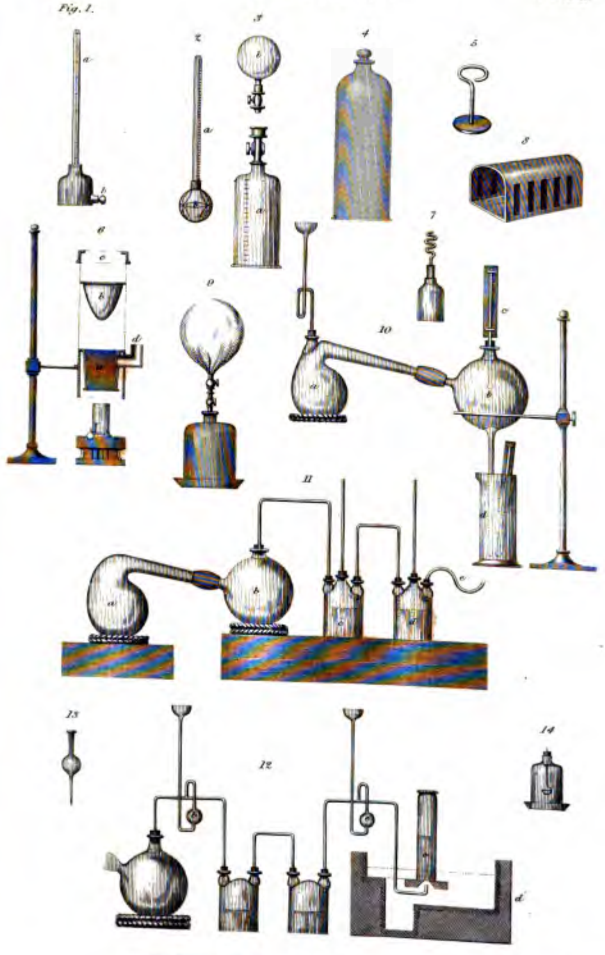
CHEMISTRY.

PLATE II.



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J. Shury sculp.

tubes; the middles of which are ground into the neck of their respective vessels, the upper extremity standing above the surface of the liquor in the vessel, and the lower extremity reaching to near the bottom of the vessel beneath. *e*, Welter's tube, to prevent absorption. *f*, an adopter ground to fit the receiver, to which any retort may be joined and luted before it is put into its place. *c*, Tube for conveying the gas into a pneumatic trough. The foot of the lowest vessel, *d*, slides in between two grooves in a square wooden foot, to secure the apparatus from oversetting. A stopple fitted to the upper vessel, instead of the adopter, *f*, converts it into a Nooth's apparatus, the materials being put into the vessel, *a*, and in this case it has the advantage of not having a valve liable to be out of order.

Fig. 4. At the side of the instrument is a form of one of the glass tubes employed.

Fig. 5. **An Alembic**, with its capital inserted into a vessel of water.

Fig. 6. **Meusmier's Instrument**, to ascertain the quantity of water yielded by the combustion of a given weight of alcohol. *a*, *b*, *c*, *d*, Cooler. *e*, *f*, Worm contained in it. *g*, *h*, Chimney. *k*, a glass tube. *m*, *l*, Argand's lamp. Things being properly disposed, and the lamp being filled with a determinate quantity of alcohol, it is set on fire, the water which is formed, during combustion, rises in the chimney, *k*, *e*, and being condensed in the worm, runs out at its extremity, *f*, into the bottle, *p*. The use of the outer chimney, *g*, *h*, and of the sand between it, and in the inner one, is to prevent the lamp which proceeds from the worm from being cooled during combustion, which would occasion the water formed by the burning to fall back on the lamp, instead of passing on into the worm.

Fig. 7. **Form of an Alembic.** *a*, Body. *b*, The neck. *c*, The capital.

Fig. 8. **Jars for Precipitation.**

Fig. 9. **Evaporating Vessel.**

Fig. 10. **Tubulated Retort**, luted to *b*, a quilled receiver, the bottle *c*, standing on a block of wood, receiving the neck of the receiver.

Fig. 11. **Glass Bottle, with Sigmoid Tube**, used for obtaining gaseous products from admixtures, such as hydrogen gas from iron filings and diluted sulphuric acid.

Fig. 12. **An Apparatus for Procuring Gas**, and at the same time precluding the possibility of its escape; the bottle, *a*, is to receive the material acted upon; *b*, the holder of the acid, or other liquid, which is to act upon the material; *c*, a stop-cock; *d*, a bent tube, which is to terminate under a receiver, filled with, and inverted in water.

Fig. 13. **An Eudiometer**, for ascertaining the purity of a mixture of gases, containing oxygen gas, by means of nitrous gas.

EXPLANATION OF PLATE II.

Fig. 1. **Dr. Hope's Eudiometer.** It consists of a small bottle, of the capacity of twenty or twenty-four drachms, destined to contain the eudiometric liquid, and having a small stopper at *b*. Into the neck of the bottle a tube is accurately fitted by grinding, which holds precisely a cubic inch, and is divided into 100 equal parts. To use the apparatus the bottle is first filled with the liquid employed, which is best prepared by boiling a mixture of quicklime and sulphur with water, filtering the solution, and agitating it for some time in a bottle half filled with common air. The tube filled with the gas under examination (or with atmospherical air when the quality of this compound is to be ascertained) is next to be put into its place, and, on inverting the instrument, the gas ascends into the bottle where it is to be brought extensively into contact with the liquid by brisk agitation. An absorption ensues; and to supply its place the stopper *b* is opened under water; a quantity of which rushes into the bottle. The stopper is replaced under water, the agitation renewed, and these operations are performed alternately till no further diminution takes place. The tube *a* is then withdrawn, the neck of the bottle being under water, and is held inverted in water for a few minutes, at the close of which the diminution will be apparent. Its amount may be measured by the graduated scale engraved on the tube. Dr. Henry makes the following objections to this instrument. If, says he, the tube *a*, and the stopper *b*, are not both very accurately ground, air is apt to make its way into the instrument to supply the partial vacuum occasioned by the absorption of oxygen gas. This absorption causes a diminished pressure within the bottle, and consequently towards the close of each agitation, the absorption goes on very slowly. Besides the eudiometrical liquid is constantly becoming more dilute by the admission of water through *b*. To obviate all these difficulties I have (says Dr. Henry) substituted for the glass bottle one of elastic gum, the tube of which being ground accurately into a short piece of very strong tube of wider bore, the outer surface of which is made rough by grinding and properly shaped, so that it may more effectually retain the neck of the elastic bottle when fixed by a string.

Fig. 2. **Dr. Henry's Modification of Dr. Hope's Eudiometer.** *a*, Graduated tube. *b*, Bottle of elastic gum for containing the eudiometrical fluid.

Fig. 3. **A Gas Receiver**, *a*. A glass flask *b*. This combined instrument is used for determining the weight of gases, the flask being first weighed, when exhausted, and when a given quantity has been received, say fifty cubic inches, it is to be again weighed, which of course will give the weight of fifty cubic inches of the particular gas experimented on.

Fig. 4. **Plain Jar for Receiving Gas.**

Fig. 5. **A Wire-stand with a Leaden Foot**, for the purpose of raising above the surface of water within a jar, any substance that is to be subjected to the action of a gas.

Fig. 6. **Apparatus for drying Precipitates**, supported by the ring of a lamp stand. *a*, A vessel of copper or sheet iron. *b*, A conical vessel of thin glass. *c*, A moveable ring to keep the glass vessel in its place. Water being poured into the vessel *a*, the vessel *b*, containing the substance to be dried is immersed into it, and the apparatus set over an Argand's lamp. The steam escapes by the chimney *d*.

Fig. 7. Pepys' Apparatus, for ascertaining the quantity of carbonic acid discharged from any substance by the addition of an acid; the twisted tube from the bottle performs the office of a still worm, and condenses any liquid that may arise with the gas, causing it to fall down again into the bottle.

Fig. 8. A Muffle; an instrument employed for the purpose of submitting substances to the continued action of a red heat with a considerable exposure to air at the same time.

Fig. 9. A Jar and Gas Receiver.

Fig. 10. Apparatus for showing that caloric exists in a latent form in gases. *a*, A retort into which salt and sulphuric acid are placed; two ounces of the former, to half the weight of the latter: the gas which this mixture produces is received into a glass balloon, *b*, from this a tube, *c*, descends into a vessel of water, *d*, of the temperature of the atmosphere. The temperature of the gas in the balloon, *b*, must be ascertained before the vessel is closed; this is to be done by inserting into it a thermometer, *e*. In this thermometer the mercury will rise only a few degrees, while the mercury of another thermometer inserted into the water, *d*, will rise to the boiling point; proving that the latent heat of the gas is given out when condensed by water.

Fig. 11. Woolfe's Apparatus (common form of it), the original inventor of which was Glauber; this was constructed upon the principle, that in gaseous formation some part of it may be absorbable by water, while other parts are not. Now the gas that is not thus taken up by the water would increase in close vessels, so as eventually to occasion their bursting. The earlier chemists made a small hole in the upper parts of their retorts to allow the escape of the gas not condensable; but, besides that this implies the loss of a considerable part of the product, it is often necessary to collect separately the gases that are, and are not, condensible by, and soluble in, water, so that it was necessary to have several receivers, or bottles with tubes, to convey away the gases not condensible, and collect them according to the wish of the experimenter. *a*, Retort. *b*, First receiver. *c*, Second receiver. *d*, Third receiver. *e*, Bent tube for conveying away unabsorbed gas. The materials introduced into the retort, and the distillation commenced, the vapor collects in the first receiver, and part is condensed while the evolved vapor passes through the tube into the second receiver, the tube terminating beneath the surface of water, which absorbs the produced gas to a certain extent; when this absorption cannot be carried further, the gas passes off into the second bottle, the water of which becomes saturated, and that which is not absorbable escapes through the bent tube, *e*, and of course if necessary may be collected. It will be perceived that the bottles have middle necks to which long tubes are attached, which communicating with the atmosphere, any occasional vaccuum is immediately supplied from without, and accidents thus guarded against.

Fig. 12. Woolfe's Apparatus, with Welter's Tube of Safety. This renders the central openings from the bottles unnecessary. A small quantity of water being poured into the funnel so as to about half fill the ball, *b* or *e*; when absorption takes place the water rises in the ball till none remains in the tube, and then the air rushes in: on the other hand no gas can escape, as it has to overcome the pressure of a high column of water in the perpendicular tube. To this instrument, another form of which is represented, plate I. fig. 3, is appended a mercurial trough, *d*, and a jar, *c*, inverted in mercury for collecting the gas that is not absorbable by water, or condensible.

Fig. 13. A Tube blown in the middle into a Ball for Dropping Liquids. The ball being filled by the suction of the mouth applied to the upper orifice, while the lower one is immersed in the liquid; or by immersing the ball and tube at once into the liquid with the point downwards, then applying the finger to the upper orifice and cautiously removing it, the liquid will pass out in drops.

Fig. 14. The mode in which charcoal or any inflammable body is introduced into oxygen gas for rapid combustion.

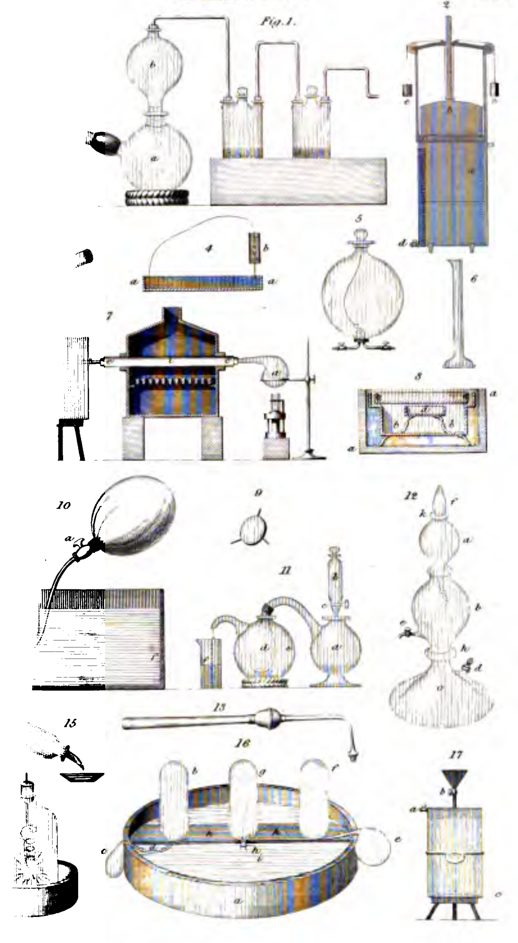
EXPLANATION OF PLATE III.

Figs. 1, 2, 3. Glass Bottles and Matrasses for solutions and experiments upon a small scale.

Figs. 4, 5, 6. Crucibles, chiefly used for subjecting substances to a high heat.

Fig. 7. Portable Blast-Furnace of Mr. Aikin.—This is composed of three parts, all made out of the common thin black-lead melting pots sold in London for the use of the goldsmiths. The lower piece, *c*, is the bottom of one of these pots, and cut off so low as only to have a cavity of about an inch deep, and ground smooth above and below. The outside diameter over the top is five inches and a half. The middle piece, or fire-place, *a*, is a larger portion of a similar pot, with a cavity of about six inches deep, and measuring seven inches and a half over the top, outside diameter, and perforated with six blast-holes at the bottom. These two pots are all that are absolutely necessary to the furnace for most operations; but when it is wished to heap up fuel above the top of a crucible contained, and especially to protect the eyes from the intolerable glare of the fire when in full height, an upper pot, *b*, is added, of the same dimensions as the middle one, and with a large opening in the side, cut to allow the exit of the smoke and flame. It has also an iron stem with a wooden handle (an old chisel answers the purpose very well) for removing it occasionally. The bellows, which are double, *d*, are firmly fixed, by a little contrivance, which will take off and on, to a heavy stool, as represented in the plate, and their handle should be lengthened so as to make them work easier to the hand. To increase their force, on particular occasions, a plate of lead may be firmly tied on the wood of the upper flap. The nozzle is received into a hole in the pot *c*, which conducts the blast into its cavity. Hence the air passes into the fire-place, *a*, through six holes of the size of a large gimlet, drilled at equal distances through the bottom of the pot, and all converging in an inward direction so that if prolonged they would meet about the centre of the upper part of the fire. (Fig. 9. shows the distribution of these holes in the bottom.

CHEMISTRY. PLATE IV.



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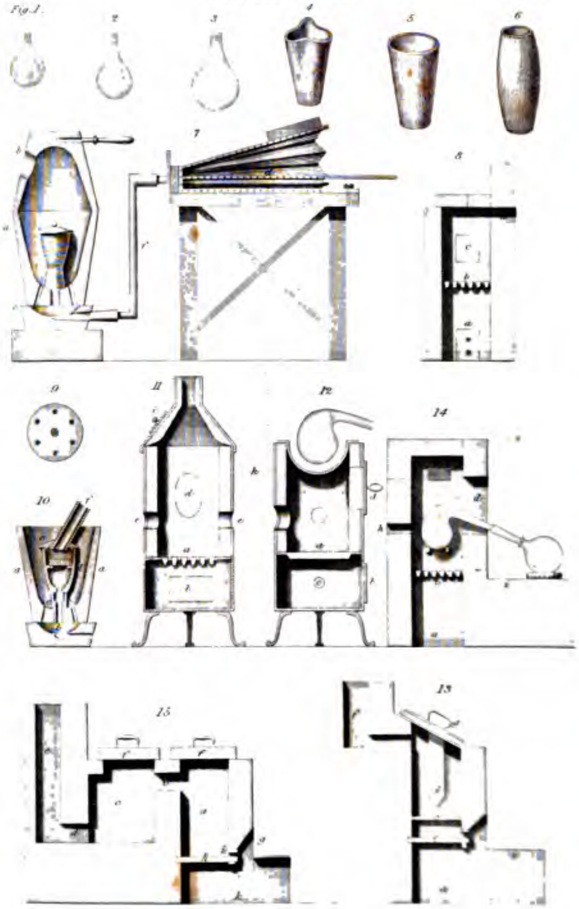
CHEMISTRY.

PLATE III.



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The large central hole is intended to receive a stand for supporting the crucible.) No luting is necessary in using this furnace, so that it may be set up and taken down immediately. *Philosophical Magazine*, vol. xvii. p. 166. See also *Ure's Dictionary*, article Laboratory, and *Henry's Elements*.

Fig. 8. A Fixed Furnace, which may be used for a wind-furnace, or for distillation with a sand heat.

Fig. 10. Mr. Aikin's Furnace, when used for showing the process of cupellation in a lecture room. The method of using it consists in causing a portion of the blast to be diverted from the fuel and to pass through a crucible in which the cupel is placed. *a a*, The furnace. *b*, The perforated stopper for the central blast. *c c*, A portion of earthen tube through which the air passes, and is heated during this transit, *e*, A piece of soft brick, perforated to admit the earthen tube, *f*, which may be kept open for inspecting the process. No luting is required except to join *f* to *e*. (Henry). Improvements made by Mr. Aikin in this furnace, may be seen and had of Mr. Knight, in Foster-lane.

Fig. 11. Knight's Portable Furnace, composed of strong iron plate, lined with fire-lute, the inside diameter six inches. *a*, The grate. *b*, The ash-pit door. *d*, The door of the fire-place when used as a sand-heat. *c c*, Two holes, opposite to each other, for transmitting a tube. *g*, An opening for a retort neck when used for distilling with the naked fire. Dr. Henry, from whom we take this plate and description, says he finds it a great improvement to make the aperture for the chimney at *k*, as shown in the next figure, instead of directing it through the sand bath, according to the ordinary construction.

Fig. 12. A different View of the same Furnace. *a*, The grate. *c*, The register of the ash-pit. *f*, A small door with a contrivance for supporting a muffle.

Figs. 13, and 14, are different views of a furnace of Mr. Knight's invention, and convertible to various purposes. It is nine inches square on its inside, and sixteen inches deep from the top to the grate. The face of the opening at *g*, fig. 13, rises at an angle which makes the back part five inches higher than the front. If the ash-pit, at *i*, be sunk below the level of the ground, the height of the furnace need not exceed eighteen inches. The ash-pit, *a*, must be at least eighteen inches deep below the surface of the ground. The grate, *b*, is formed of separate bars, three-fourths of an inch apart, and of a triangular shape. The chimney, *f*, is two inches and a half from the top, and four and a half by two and a half wide.

When we wish to apply this furnace to the purpose of occasional distillation, an opening, *d* fig. 14, is left on one side, which, when not wanted, is filled up by brick. Other pieces of brick may likewise be provided, with arched openings, one of them having a round hole in it, for occasionally transmitting a tube, and a corresponding hole, in fig. 13, must then be made in the opposite side of the furnace, to be closed when not wanted.

Fig. 15. Is a longitudinal section of a wind-furnace, invented also by Mr. Knight, with an additional chamber for supplying the waste heat to useful purposes. *a*, The internal cavity. *b*, The flue, passing into a hot chamber. *c*, An appendage for drying, or roasting, &c. *d*, The flue, connecting it with the vertical chimney *e*. *f f*, covers, formed of twelve-inch Welsh tiles, with handles. *g*, The stoke hole. *h*, Bearing-bar. *k*, Ash-pit, sunk below the level of the ground.

EXPLANATION OF PLATE IV.

Fig. 1. Mr. Pepys' Improvement of Woolfe's Apparatus.—The balloon, *a*, is surmounted by a vessel, *b*, accurately fitted to it, and furnished with a glass valve, allowing gas freely to pass into it, but preventing the water which it contains from falling into the balloon.

Fig. 2. A Gasometer.—This consists of an outer fixed vessel *a*, and an inner moveable one *b*, both of japanned iron. The latter slides easily up and down with the other, and cords passing over pulleys suspend it, to which the counterpoises *c*, *c*, are attached. The gas enters from the vessel in which it has been formed by the communicating pipe *d*, and passes along the perpendicular pipe, indicated by dotted lines in the centre, into the cavity of the vessel *b*, which continues to rise till it is full, and then it is stopped by the cross-bar to which the pulleys are attached.

Fig. 3. Gas Receiver.

Fig. 4. A Galvanic Trough, *a a* (see Electro-Galvanism). The tube marked *b* is the arrangement for decomposing water. *a a*, The trough.

Fig. 5. Cuthbertson's Apparatus, for showing the composition of water. A glass receiver *a*, with an aperture at the bottom, to which a piece of brass is cemented, perforated with two holes, one aperture conveying the oxygen gas, and one the hydrogen.

Fig. 6. A Tubular Vessel, for several purposes of experiment.

Fig. 7. Apparatus for decomposing Water over red-hot iron or charcoal.—A retort *a*, partly filled with water, is to be affixed to a gun-barrel *b b*, open at both ends, and filled up with iron wire, coiled up at both ends; the barrel is to be placed, nearly horizontally, in a furnace, with a small elevation of that end nearest the retort. A fire is to be lighted in the furnace, and, when the gun-barrel has become red-hot, a lamp is to be applied under the retort *a*, which will cause the water it contains to pass through the tube, and over the red-hot iron wire; it will thus be decomposed, its oxygen uniting with the iron, and its hydrogen, passing over in the form of gas, will be received in the pneumatic cistern, or worm tub *c*.

Fig. 8. A cheap Instrument for freezing Quicksilver by muriate of lime and snow. *a a*, The outer vessel of wood. *b b*, An inner tin vessel, standing on feet. *c c*, A shallow tin pan, resting on a projection of the inner tin vessel. Beneath this is a third, *d*, made of untinned iron, and supported by feet two inches high. Into this vessel the mercury to be frozen is placed, and the freezing composition is to be placed in the outer one, so as completely to surround the inner one.

Fig. 9. A **Wire Stand.**

Fig. 10. An **Apparatus** for showing the diminution effected in the volume of hydrogen and oxygen gases, by their slow combustion. The jar inverted in *f, f*, is filled with oxygen gas; the large bladder with hydrogen; to this bladder it will be seen is attached a tube with a long brass pipe bent: a stop-cock is attached, *d*. The bladder being pressed, a stream of gas issues through the pipe, which may be set on fire by a spark from an electrical machine; the combustion being continued for a certain time, the water will rise gradually within the jar in proportion to the consumed oxygen.

Fig. 11. This figure represents the different parts of the apparatus required for measuring the quantity of elastic fluid given out during the action of an acid on calcareous soils. The bottle containing the soil is represented at *a.b.* The bottle containing the acid furnished with a stop-cock. *c*, The tube connected with a flaccid bladder *d*. *f*, A graduated measure. *e*, The bottle for containing the bladder. When this instrument is used, a given quantity of soil is introduced into *a*. *b* is filled with muriatic acid diluted with an equal quantity of water, and the stop-cock being closed is connected with the upper orifice of *a*, which is ground to receive it. The tube *c* is introduced into the lower orifice of *a*, and the bladder connected with it, placed in its flaccid state in *e*, which is filled with water. The graduated measure is placed under the tube of *e*. When the stopper-cock of *b*, is turned, the acid flows into *a*, and acts upon the soil; the elastic fluid generated passes through *c* into the bladder, and displaces a quantity of water in *e* equal to it in bulk; and this water flows through the tube into the graduated measure, the water in which gives by its volume the indication of the proportion of carbonic acid disengaged from the soil; for every ounce measure of which two grains of carbonate of lime may be estimated. See **Soil** and **Agriculture.**

Fig. 12. A **common Nooth's apparatus** for impregnating water with gas. The lower vessel, *c*, contains the effervescing materials; *d*, represents a ground stopper closing an orifice, by which additional materials may be put into the lower vessel. *b*, The middle vessel opened both above and below to the neck of the lower vessel, which receives the inferior neck of the middle vessel; this connexion is so contrived, that gas may pass up, but fluid cannot return. *e*, A cock to draw off the contents of *b*; the upper vessel, *a*, is fitted by grinding into the upper neck of the middle vessel; its inferior part consists of a tube that passes almost as low as the centre of the middle vessel. A ground stopper closing the upper orifice. When this apparatus is to be used, the effervescent materials are put into the lower vessel; the middle vessel is filled with pure water, and put into its place; and the upper vessel is filled and likewise put into its place. The consequence is, that the carbonic acid gas, passing through the valve at *h*, ascends into the upper part of the middle vessel *b*, where by its elasticity it reacts on the water, and forces part up the tube into the vessel *a*; part of the common air in this last being compressed, and the rest escaping by the stopper, which is made of a conical figure that it may be easily raised. As more carbonic acid, or any other gas is extricated, more water rises, till at length the water in the middle vessel falls below the lower orifice of the tube. The gas then passes through the tube into the upper vessel, and expels more of the common air by raising the stopper. In this situation, the water in both vessels being in contact with a body of carbonic acid gas, it becomes strongly impregnated with this gas after a certain time. This effect may be hastened by taking off the middle and upper vessels together and agitating them.

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Fig. 14. **Vivid Combustion in Oxygen Gas.**

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Fig. 16. The **Common Apparatus** used for transferring air or gas from one vessel to another. *a*, A metal trough. *k k*, A shelf fixed in it. When the apparatus is used, the trough is to be filled with water, about one inch above the shelf. *b, g, f*, are glass jars inverted upon the shelf; these being filled with water, and then inverted on the shelf, will remain so filled till displaced by directing a stream of air or gas into them, which, by its superior levity, will rise in the glass, and press upon and dislodge part of the water.

Fig. 17. A **Gas-holder.** *a* and *c*, Two short pipes, terminated by cocks. *b*, A pipe passing through the middle of the cover, reaching within half an inch of the bottom of the apparatus. The vessel is first filled with water through the funnel, at the top of the apparatus; the cock *a* being left open and *c* shut. The gas from the gasometer is to be directed into the aperture *a*. The cock *c* is now opened, and *b* shut, and the vessel will thus be filled with gas by the expulsion of the water at *c*; when this no longer flows the vessel is full of the gas, and now all the cocks are to be shut till the contents of the air-holder are required for use. See for description and figures of improved gas-holders, the 13th, 24th, 27th, and 44th vols. of the *Philosophical Magazine.*

EXPLANATION OF PLATE V.

Fig 1. A **Lamp Furnace**, improved by Mr. Accum. It consists of a brass rod, screwed to a foot of the same metal, loaded with lead. On this rod, which may be unscrewed in the middle, slide three brass sockets, terminating in brass rings, which rings are for supporting alembics, flasks, retorts, &c. By means of a thumb-screw acting on the rod of the lamp, each of the brass

CHEMISTRY.

PLATE V.

Fig. 6.

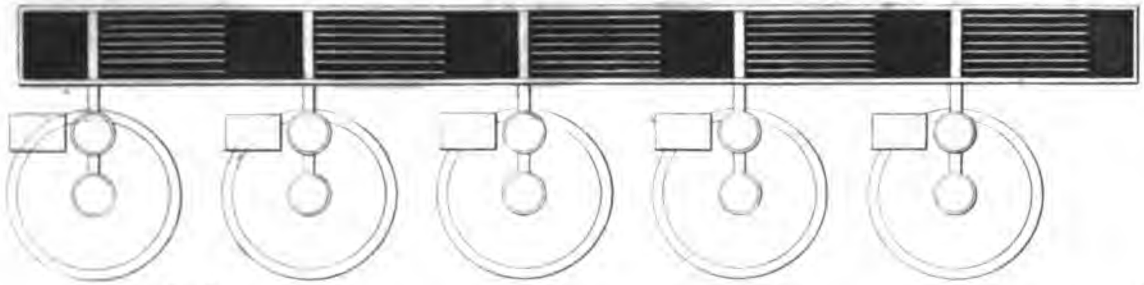


Fig. 4.

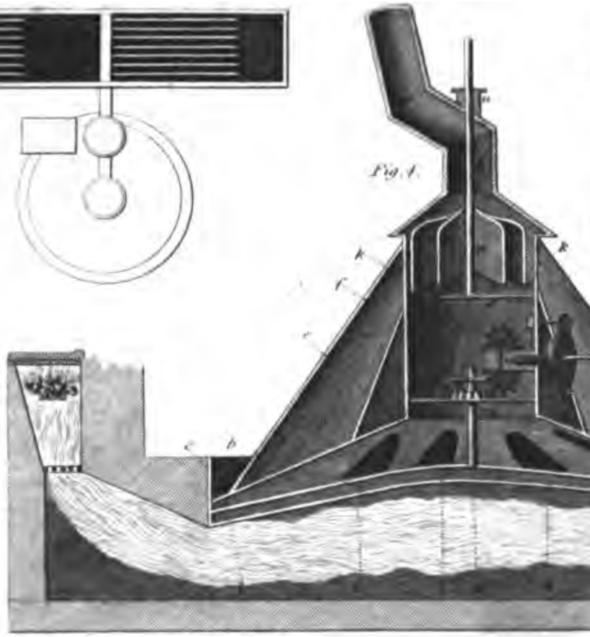


Fig. 12.

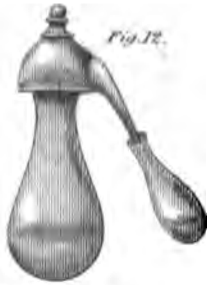
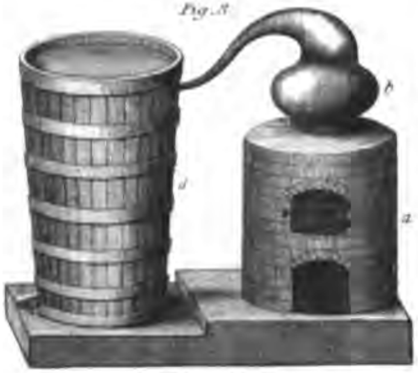


Fig. 3.



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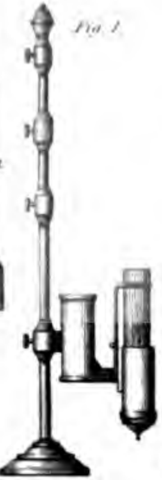

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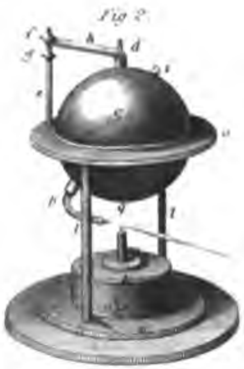

Fig. 11.

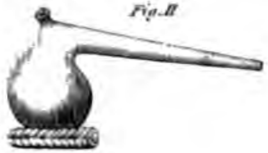

Fig. 5.

Fig. 7.

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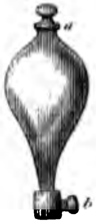
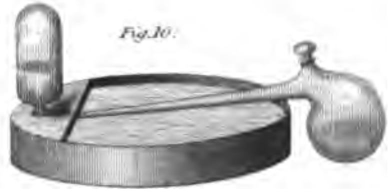


Fig. 10.



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J. Shury sculp.

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rings may be placed according to pleasure. Below these rings is a fountain lamp, on Argand's plan, which also slides on the main brass rod by means of a socket and thumb-screw. This lamp may be used for producing any degree of heat that the operator requires, from a very gentle one up to the high temperature requisite for distilling mercury.

Fig. 2. INSTRUMENT FOR DIRECTING THE VAPOR OF ALCOHOL ON FLAME. *a*, A hollow sphere for containing alcohol, resting upon a shoulder in the ring *o*. *b*, A bent tube with a jet at the end, to convey the alcohol in the state of vapor to the flame at *q*; this tube is continued in the inside up to *c*, which admits of *a* being nearly filled without any alcohol running over. *d*, A safety valve, the pressure of which is determined at pleasure, by screwing higher or lower on the pillar *e*, the two milled nuts *f* and *g*, carrying the steel arm *h*, which rests on the valve. *i*, An opening for putting in the alcohol. *k*, The lamp which adjusts to different distances from *a*, by sliding up or down the two pillars *l*, *l*. The distance of the flame *q* from the jet is regulated by the pipe which holds the wick being a little removed from the centre of the brass piece *m*, and of course revolving in a circle. *n*, The mahogany stand.

Fig. 3. Represents the COMMON LARGE STILL, used for the distillation of spirits. *a*, The body. *b*, The head. *d*, A spiral pipe, called the worm of the still, which passes through a tub of cold water, and condenses the vaporous material, which then comes out in a fluid form at *e*.

It is evident that the wider and more shallow the bottom of the still, so will be its power of effecting a good deal in a short time, as the whole bottom of the vessel may be subjected to heat, and thus vaporisation speedily and copiously produced. This principle has been acted on to such an extent, that a still of the capacity of forty gallons in the body, and three in the head, charged with sixteen gallons of wash, can be worked 480 times in twenty-four hours.

Fig. 4. Presents a vertical section of this still. *a*, The bottom, joined to *b*, the shoulder, with solder or rivets, or screws and lute. *c*, The turned up edge of the bottom, against which, and on a level with *a*, the brick work of the coping of the flue rests, preventing the flames from jetting up to touch *c*. *d*, The discharge pipe. *e e*, The body of the still. *f*, Section of the central steam escape pipe. *g*, Section of one of the lateral steam escape pipes. *h*, Outside view of another. *i i i i*, Inferior apertures of lateral steam pipes. *k k k k*, Their superior apertures. *l l*, Bottom scraper, or agitator, which may be either made to apply close to the bottom, or to drag chains. *m*, The upright shaft of this engine, as it is called. *n*, The horizontal wheel, with its supporters. *o*, Its vertical wheel. *p*, Its handle and shaft. *q*, Support of the shaft. *r*, Froth and ebullition jet breaker, resting on the cross bar *s*. *t*, Its upright shaft. *u*, Its cup-mouthed collar, filled with wool and grease, and held down by a plate and screws. *v*, General steam escape pipe, or head. The charge pipe, and the sight hole, for the man who charges it to see when it is sufficiently full, are not seen in this view.

Fig. 5. A FUNNEL for introducing liquids into retorts, so as not to interfere with their necks.

Fig. 6. Another representation of a Woulfe's apparatus, with the supplying tube represented at *h*. See the other figures.

Fig. 7. A BRASS PRONG, with a wooden handle for holding an evaporating glass over a lamp.

Fig. 8. SECTION OF AN EVAPORATING DISH.

Fig. 9. A SEPARATOR, for separating liquids of different specific gravities. *a*, A ground stopper. *b*, A glass stop cock. When the lightest of two liquids has risen completely to the top, the heaviest may be let out by opening the stop cock, and again shutting it when all the heavy liquid has passed out.

Fig. 10. COMMON TROUGH, with an inverted jar for collecting gas, with a retort appended, containing the materials from which the gas is supplied.

Fig. 11. A PLAIN RETORT.

Fig. 12. AN ALEMBIC, WITH A RECEIVER ATTACHED TO IT.

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Fig. 2. Instrument for directing the Vapour of Alcohol on Flame. a. A hollow sphere for containing alcohol, resting upon a shoulder in the ring b. c. A bent tube with a jet at the end, to convey the alcohol in the state of vapour to the flame of g; this tube is continued in the inside up to [illegible], which admits of a being nearly filled without any alcohol running over. d. A safety valve, the pressure of which is determined at pleasure, by screwing higher or lower on the pillar [illegible] the two milled nuts f and g, carrying the steel arm [illegible], which rests on the valve. [illegible] An opening for putting in the alcohol. [illegible] The lamp which adjusts to different distances from c, by sliding up or down the two pillars [illegible]. The distance of the flame [illegible] from the jet is regulated by the pipe which holds the wick being a little removed from the centre of the brass plate m, and of course revolving in a circle. n. The mahogany stand.

Fig. 3. Represents the Common Large Still, used for the distillation of spirits. a. The body. b. The head. c. A spiral tube, called the worm of the still, which passes through a tub of cold water, and condenses the vaporous material, which then comes out in a fluid form at [illegible].

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Fig. 8. Section of an Evaporating Cone.

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Fig. 10. Common Retort, with an inverted jar for collecting gas, with a vessel connected, containing the materials from which the gas is supplied.

Fig. 11. A Plain Retort.

Fig. 12. The Alembic, with a Receiver attached to it.

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ADDENDA.

We have referred to the word Tannin, in the body of the Encyclopædia, for an account of this substance; but, upon reconsideration, we have thought that the foregoing article will scarcely be allowed to comprehend every thing that a system of chemistry ought to embrace without a little more notice of this principle (tannin) than will be found in the section on gallic acid.

This principle is contained in many vegetables; it is usually procured from the gall-nut, from the oak-bark, or from catechu; its purest form we are told is derived from bruised grape seeds, by means of a small quantity of cold water; but upon a large scale it is generally obtained from the bark of the oak, on account of its cheapness; but various kinds of bark also afford the principle.

Tan or tannin has the following properties; when added to a solution of any animal jelly, it forms a hard insoluble matter; and it is upon this property the art of tanning depends. When evaporated to dryness tan forms a brown friable mass, resembling aloes in its appearance. This mass is soluble both in hot and cold water; but not in alcohol.

From this watery solution almost all the acids throw down tan, by forming with it an insoluble compound. But nitric acid converts it into a yellowish brown matter, which is now soluble in alcohol. Chlorine produces on it the like change; and peroxide of tin converts it into a sort of extractive matter, 'probably by communicating oxygen.'

As tan possesses in a marked degree the above named property of changing glue into a hard and insoluble coagulum, its infusion may be relied on as a test of the presence of gelatine in bodies; and again, solution of gelatine may be employed as a test of the presence of tan, for which purposes they are both used.

Mr. Hatchett has shown that tan may be formed artificially by digesting charcoal in dilute nitric acid during several days; and this artificial tannin seems only to differ from the natural, in resisting the action of nitric acid.

Varieties of artificial tan may also be formed by distilling nitric acid on common resin, or indigo, or several resinous substances; as well as by the action of sulphuric acid on camphor, assafœtida, &c.

This artificial production is, in fact, a purer variety of tan than the natural, since it is free both from gallic acid and from the extractive principle, both of which are always present in the natura. tannin. See *Philosophical Transactions*, 1805, 1806.

The other omission which we deem it proper to notice is, the circumstance of condensation or contraction by cold, although a general not being an universal law. Water by freezing becomes actually increased in bulk, this fluid having obtained its maximum of density at 40°, and if it be cooled below that point it expands in proportion to the diminution of temperature; in proportion we say, for it is a remarkable fact, that 'the rate of this expansion is equal for any number of degrees above or below this maximum of density, so that the bulk of water at 32° and at 48° will be the same.'

Under the words Freezing and Ice we shall have to revert to this anomalous circumstance, and shew its utility in the economy of nature.

We may further state, as less important and regular exceptions to the principle of contraction by cold, that some salts in the act of crystallizing expand; and that some of the metals are increased in bulk by congealment.

CORRIGENDA.

Par. 219. *Blended* for *Blinded*.
— 396. *Chloride* of nitrogen for *chlorine* of nitrogen.
— 863. *Sulphur* and cobalt for *chlorine* and sulphur.
— 954. *Phosphorus* and potassium for *phosphuret* and potassium.
— 1033. *Iodine* and calcium for *iodide* and calcium

CHEMNITZ, an old fortified town of Upper Saxony, on a river of the same name, in the marquisate of Meissen, containing three churches, and an hospital. Cottons, and other fine stuffs are made here; and the bleaching is considerable. It lies thirty-five miles W.S.W. of Dresden, and thirty-two south-west of Meissen.

Chemnitz (Martin), a famous Lutheran divine, the disciple of Melancthon, was born at Britzen in Brandenburgh, in 1522. He was employed in several important negociations by the Protestant princes, and died in 1589. His principal work is an Examen of the Council of Trent, Latin.

CHEMOSH. See Chamosh.

CHEMOSIS, in surgery, a disease of the eye, proceeding from inflammation; wherein the white of the eye has a jelly like appearance, and swells the transparent cornea. It may be cured by almost any mild astringent eye-water, especially if a very minute portion of camphor be added.

CHENIER (Marie Joseph), a time-serving man of letters during the various revolutionary governments of France, was born at Constantinople in 1762, his father being French consul there. He is said, early in life, to have been in the army. He wrote a drama, Charles the Ninth, which was received with applause, and dedicated it to Lewis XVI, as,

> 'Monarque des François, roi d'un peuple fidelle.'

This was followed by the Death of Calas, Gracchus, and Timoleon. In the revolution, Chenier became a Jacobin, and was member of the municipality of Paris on the 10th of August, 1792. His odes were sung on the anniversaries of the 14th of July, the 10th of August, and on various occasions of the kind. In September, 1792, he was a deputy of the national convention, and voted for the death of the king. In May, 1795, he declared against the terrorists, was appointed president of the convention in August, when the constitution of 1795 was completed, and afterwards became a member of the council of five hundred. He was proclaimed, on the 22nd of September, the first of French poets. In 1798 he was re-elected a member of the council of five hundred, and in December 1799 a member of the tribunate. Besides the above works, he wrote An Historical Sketch of the State and Progress of French Literature since 1789. He died at Paris in 1811.

Chenier (Andrew), brother of the foregoing, was also a writer during the revolution, who, in 1794, gave offence to his brother's party. Being tried, and condemned to the guillotine, Marie Joseph Chenier is said to have brutally exclaimed, 'If my brother is guilty let him perish.' This assertion, however, is believed to be a calumny. He was executed in 1794, at the age of thirty-one. The brother we are told received various letters from the departments, with this epigraph, 'Cain, restore to us thy brother !'

CHENISCUS, from χην, a goose, in antiquity, an ornament in the form of a goose, used on the prow and stern of ships.

CHENOI EA, in botany, a genus of plants of the order monogynia, class pentandria: CAL. quinquefied: COR. none. Style filiform; stigmas two, and reflected: CAPS. umbilicated, monospermous. Species only one, a Cape shrub.

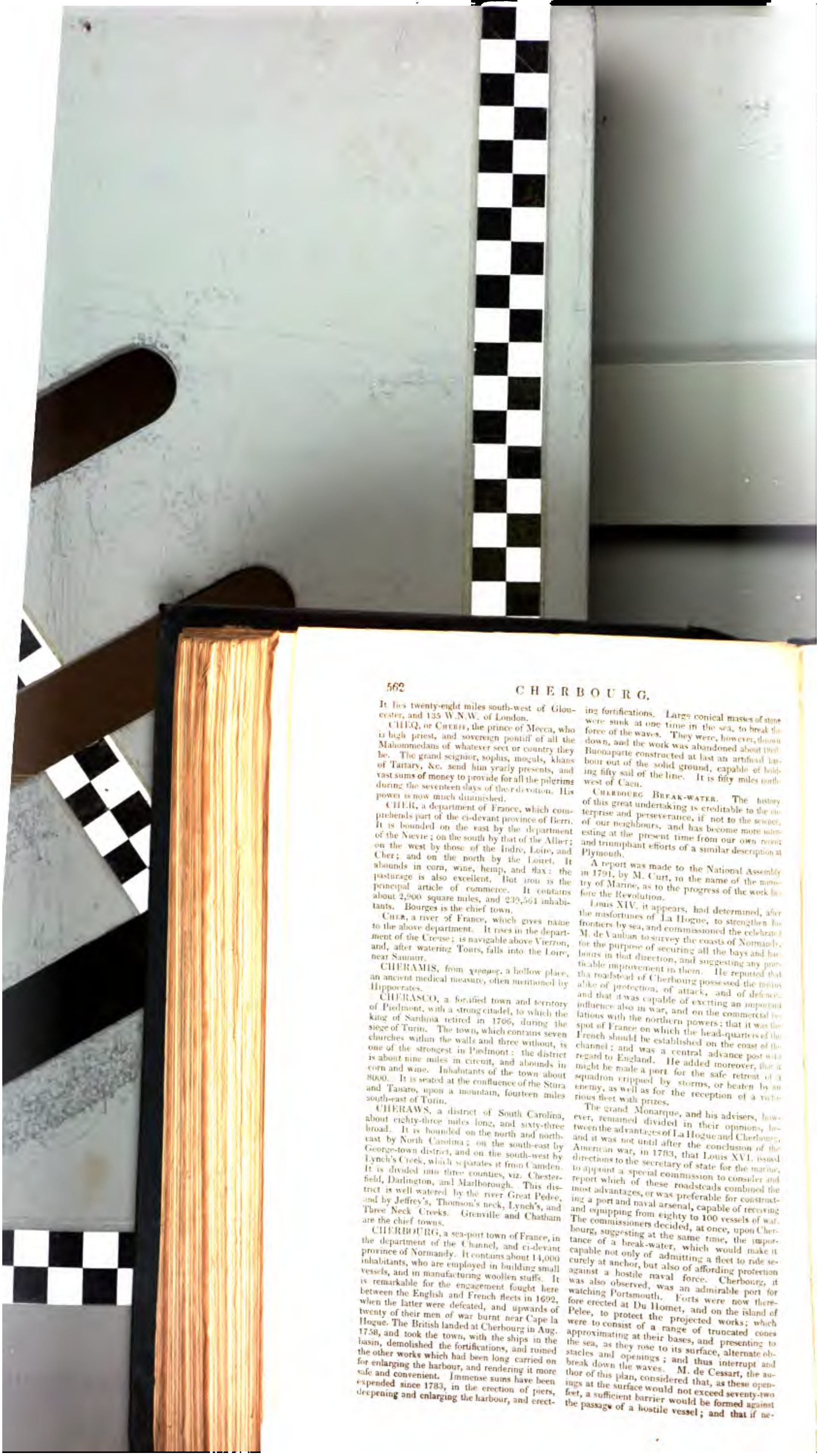
CHENOPODIUM, goose-foot, or wild orach, in botany, a genus of the digynia order, and pentandria class of plants; natural order twelfth, holoraceæ: CAL. pentaphyllous and pentagonal: COR. none, seed one, lenticular, superior. There are twenty-six species, thirteen of which are natives of Britain. Most of them have an aromatic smell. A species which grows near the Mediterranean is used by the Egyptians in sallads, on account of its saltish aromatic taste. From this plant kelp is made in other countries. 1. C. ambrosoides, or the Mexican tea tree, easily propagated from seeds, and thrives best in a rich soil. 2. C. bonus henricus, or common English mercury, found growing naturally in shady lanes, in many places in Britain. It was formerly used as spinach. As an article of the Materia Medica, it once ranked among the emollient herbs; is now never used. This plant is remarkable, according to M.M. Chevalier and Lasseigne, for containing uncombined ammonia, which is probably the vehicle of the remarkably nauseous odor which it exhales, strongly resembling that of putrid fish. When it is bruised with water, and the liquor expressed and afterwards distilled, we procure a fluid containing the subcarbonate of ammonia, and an oily matter, which gives the fluid a milky appearance. If the expressed juice of the chenopodium be evaporated to an extract, it is found to be alkaline; there seems to be acetic acid in it. Its basis is said to be of an albuminous nature. It is stated also to contain a small quantity of the substance which the French call osmazome, a little of an aromatic resin, and a bitter matter, soluble both in alcohol and water, as well as several saline bodies. 3. C. botrys, or the oak of Jerusalem, with oblong sinuate leaves, thrives best in a rich light earth, and may be easily propagated from seeds, as indeed all the other species may be. 4. C. scoparia, the belvidere, or annual mock cypress, is of a beautiful pyramidal form, resembling a young cypress tree. This is a plant much esteemed in China. About the end of March and beginning of April, the belvidere springs up; its suckers or shoots rise to the height of eight or nine inches, in shape of a child's fist half shut; it afterwards extends itself, and sends forth a number of branches loaded with leaves, like those of flax; and, as it grows, its branches arrange themselves naturally in the form of a beautiful pyramid; its leaves, yet tender, abound with juice, and have a very agreeable taste. When in its full beauty its leaves become hard and unfit for the table; but nourishment is then found in its root, which serves as a resource in times of famine and scarcity. When the belvidere has attained to its natural size the Chinese separate its principal stalk from the rest, and put it into a lye of ashes, which cleans and softens it, and frees it from all impurities of the bark. After this, it is exposed to the sun; and, when dry, it is baked and seasoned. From the root, which has something of a violet color, they strip the skin by filaments, which may be boiled and eaten: but what is particularly sought after, is the root itself; of which, when reduced to powder, they collect only what remains in the bottom of the vessel, and form it into small loaves, that are baked by being held over the steam of boiling water.

CHEN-SI, or SHEN-SI, a province of China, bounded on the east by the Hoang-ho, which separates it from Chan-si, on the south by the provinces of Se-tchuen and Hou-quang, on the north by Tartary and the great wall, and on the west by the country of the Moguls. It is one of the most extensive provinces of the empire; and has two viceroys, besides the governors of So-tcheou, and Kan-tcheou, which are the strongest places in the country. The climate is temperate, and the people civil and affable to strangers. The soil is fertile, and produces plentiful crops of wheat and millet. They have also honey, wax, musk, rhubarb, cinnabar, and coal mines. Gold dust is washed down by the torrents and rivers. They have a vast number of deer, bears, musk goats, wild bulls, &c. besides an animal resembling a tiger, whose skin is singularly beautiful; a species of bats as large as hens, and several other animals quite unknown in Europe. The province is divided into two parts, the east and the west, and contains eight cities of the first rank, and 106 of the second and third. Singan-fou is the capital.

CHEN-YANG, a mountainous province of Chinese Tartary, formerly known as Leao-tong, and bounded on the south by the great wall of China. Here are various mines and some noble timber. Wheat, millet, and legumes, and most of the European fruits are grown here, as well as cotton in abundance. Great numbers of sheep and cattle are also reared. The capital, is Moukden, or Chen-yang, besides which, there are several other ill-built towns in the district.

CHEPELIO, or CHEPELLO, an island in the bay of Panama, and province of Darien, South America, situated about three leagues from the city of Panama, which it supplies with provisions. Lon. 79° 55′ W., lat. 8° 46′ N.

CHEPSTOW, a sea-port and market town of England, in the county of Monmouth: situated near the mouth of the Wye, over which there is a high bridge. It is a large and flourishing town, formerly walled round, and defended by a castle, part of which still remains. Chepstow is the port for all the towns seated on the Wye and Lug. Ships of 600 tons burden are built here, and even those of 700 tons come up to the town. The tide comes in at this place with greater rapidity than at Bristol, and sometimes rises at the bridge fifty or sixty feet perpendicular. This bridge is of cast-iron, and connects Monmouth and Gloucestershire, it was erected in 1816; and is maintained at their joint expense.



It lies twenty-eight miles south-west of Gloucester, and 135 W.N.W. of London.

CHEQ, or Cherif, the prince of Mecca, who is high priest, and sovereign pontiff of all the Mahommedans of whatever sect or country they be. The grand seignior, sophis, moguls, khans of Tartary, &c. send him yearly presents, and vast sums of money to provide for all the pilgrims during the seventeen days of their devotion. His power is now much diminished.

CHER, a department of France, which comprehends part of the ci-devant province of Berri. It is bounded on the east by the department of the Nievre; on the south by that of the Allier; on the west by those of the Indre, Loire, and Cher; and on the north by the Loiret. It abounds in corn, wine, hemp, and flax: the pasturage is also excellent. But iron is the principal article of commerce. It contains about 2,900 square miles, and 239,561 inhabitants. Bourges is the chief town.

Cher, a river of France, which gives name to the above department. It rises in the department of the Creuse; is navigable above Vierzon, and, after watering Tours, falls into the Loire, near Saumur.

CHERAMIS, from χηραμος, a hollow place, an ancient medical measure, often mentioned by Hippocrates.

CHERASCO, a fortified town and territory of Piedmont, with a strong citadel, to which the king of Sardinia retired in 1706, during the siege of Turin. The town, which contains seven churches within the walls and three without, is one of the strongest in Piedmont: the district is about nine miles in circuit, and abounds in corn and wine. Inhabitants of the town about 8000. It is seated at the confluence of the Stura and Tanaro, upon a mountain, fourteen miles south-east of Turin.

CHERAWS, a district of South Carolina, about eighty-three miles long, and sixty-three broad. It is bounded on the north and north-east by North Carolina; on the south-east by George-town district, and on the south-west by Lynch's Creek, which separates it from Camden. It is divided into three counties, viz. Chesterfield, Darlington, and Marlborough. This district is well watered by the river Great Pedee, and by Jeffrey's, Thomson's neck, Lynch's, and Three Neck Creeks. Grenville and Chatham are the chief towns.

CHERBOURG, a sea-port town of France, in the department of the Channel, and ci-devant province of Normandy. It contains about 14,000 inhabitants, who are employed in building small vessels, and in manufacturing woollen stuffs. It is remarkable for the engagement fought here between the English and French fleets in 1692, when the latter were defeated, and upwards of twenty of their men of war burnt near Cape la Hogue. The British landed at Cherbourg in Aug. 1758, and took the town, with the ships in the basin, demolished the fortifications, and ruined the other works which had been long carried on for enlarging the harbour, and rendering it more safe and convenient. Immense sums have been expended since 1783, in the erection of piers, deepening and enlarging the harbour, and erecting fortifications. Large conical masses of stone were sunk at one time in the sea, to break the force of the waves. They were, however, thrown down, and the work was abandoned about [illegible]. Buonaparte constructed at last an artificial harbour out of the solid ground, capable of holding fifty sail of the line. It is fifty miles north-west of Caen.

Cherbourg Break-water. The history of this great undertaking is creditable to the enterprise and perseverance, if not to the science, of our neighbours, and has become more interesting at the present time from our own recent and triumphant efforts of a similar description at Plymouth.

A report was made to the National Assembly in 1791, by M. Curt, in the name of the ministry of Marine, as to the progress of the work before the Revolution.

Louis XIV. it appears, had determined, after the misfortunes of La Hogue, to strengthen his frontiers by sea, and commissioned the celebrated M. de Vauban to survey the coasts of Normandy, for the purpose of securing all the bays and harbours in that direction, and suggesting any practicable improvement in them. He reported that the roadstead of Cherbourg possessed the means alike of protection, of attack, and of defence; and that it was capable of exciting an important influence also in war, and on the commercial relations with the northern powers; that it was the spot of France on which the head-quarters of the French should be established on the coast of the channel; and was a central advance post with regard to England. He added moreover, that it might be made a port for the safe retreat of a squadron crippled by storms, or beaten by an enemy, as well as for the reception of a victorious fleet with prizes.

The grand Monarque, and his advisers, however, remained divided in their opinions, between the advantages of La Hogue and Cherbourg, and it was not until after the conclusion of the American war, in 1783, that Louis XVI. issued directions to the secretary of state for the marine, to appoint a special commission to consider and report which of these roadsteads combined the most advantages, or was preferable for constructing a port and naval arsenal, capable of receiving and equipping from eighty to 100 vessels of war. The commissioners decided, at once, upon Cherbourg, suggesting at the same time, the importance of a break-water, which would make it capable not only of admitting a fleet to ride securely at anchor, but also of affording protection against a hostile naval force. Cherbourg, it was also observed, was an admirable port for watching Portsmouth. Forts were now therefore erected at Du Homet, and on the island of Pelee, to protect the projected works; which were to consist of a range of truncated cones approximating at their bases, and presenting to the sea, as they rose to its surface, alternate obstacles and openings; and thus interrupt and break down the waves. M. de Cessart, the author of this plan, considered that, as these openings at the surface would not exceed seventy-two feet, a sufficient barrier would be formed against the passage of a hostile vessel; and that if necessary, in time of war, it might be rendered still more secure by chains of iron thrown across. It was proposed to construct these conical caissons of wood, the number of which to cover a front of 2000 toises would amount to ninety: costing 360,000 livres each, which would cause a total expense of 32,400,000 livres. This number was afterwards reduced to sixty-four. Every cone was to be 150 feet in diameter at the base, and sixty feet at the top, and from sixty to seventy feet in height; the depth of water at spring tides, in the line in which they were intended to be sunk, varying from about fifty-six to seventy feet. They were proposed to be sunk without any bottoms in them, by which the upper resistance of the water, acting on a base whose surface was equal to 17,678 square feet, would be avoided. The caissons, floated off by casks, attached to their inner and outer circumference, being towed to the spot where they were destined to be sunk, were then to be filled with stones to the tops, and left for a while to settle; after which the upper part, commencing with the line of low water, was to be built with masonry, laid in pozzolana, and encased with granite stone. The time estimated for completing the work was thirteen years.

The first cone was floated off and sunk, June 6th, 1784; and the second on the 7th July following, in presence of 10,000 spectators; but before the latter could be filled, as proposed, with stones, a storm, which continued five days of the following month, entirely demolished the upper part of it. The quantity of stones sunk this summer within the cavities of the two cones, outside their basis, and in the intermediate space, was 4600 cubic toises, or about 65,000 tons. Three more cones were completed and sunk in 1785; at the end of that year, the total quantity of stone sunk amounted to 17,767 cubic toises, or about 250,000 tons. In 1786 five more cones were completed and sunk; one of them in the presence of the king; and the quantity of stones thrown within them, and deposited on the dike connecting the cones, amounted, at the end of this year, to 42,862 cubic toises, or 600,000 tons. Next year five more cones were sunk and filled with stones, making, in the whole, fifteen; and the distance between the first and fifteenth cone was 1203 toises: the quantity of stones deposited within these cones and the connecting dike, at the end of this year, amounting to 71,585 cubic toises, or more than 1,000,000 tons. But the violent gales of wind, that were frequent in November and December, carried away all the upper parts of the five cones sunk. Three more were sunk in 1788, but the upper parts of the first two were also carried away as the others had been, and the height of the third so reduced, as to be level with low water. In the following year the works were suspended in despair, and the three cones, then building, sold by auction.

The total quantity of stone sunk from the year 1784 to December 1790, being seven years, amounted it is said to 373,359 cubic toises, or about 5,300,000 tons, and occupied a line of 1950 toises in length. The distance of the first cone from the Island Pelee, on the east, was 510, and of the eighteenth to Fort Querqueville on the west 1200 toises; so that of the whole entrance or opening of the roadstead of Cherbourg, which was originally 3660 toises, more than one-half was now imperfectly protected by the breakwater.

The entire expense of this undertaking, was never, perhaps, known. M. de Cessart estimates the cost of the eighteen cones at 6,231,407 livres, or about £260,000, and the total expense incurred between the 1st of April, 1783, and the 1st of January 1791, at 21,658,420 livres, or £900,000 sterling.

In this work were employed 250 carpenters, thirty blacksmiths, 200 hewers of stone, and 200 stone-masons. The quarry and carrying men were estimated at 400 workmen, assisted by 100 horses, thirty drivers, and twenty-four chasse-marees each carrying seven cubic toises, or about ninety-eight tons, with 100 seamen. To the whole establishment were attached 3000 soldiers, as supernumerary hands, and guards of the works.

The Revolution effectually stopped the completion of this mighty undertaking; but between 1791 and 1803 a plan for casing over the whole length of old work, with blocks of stone, was so far carried into effect, that in the latter year, the centre of the dike had been brought above the high water mark: and here were placed a battery and a small garrison of soldiers, the whole of which were swept away by a heavy sea, occasioned by a tremendous gale of wind, in the year 1809. Small spots only of the break-water are now visible above the surface of the sea at low water of spring tides, and such spots nowhere exceed three feet in height; the intermediate spaces are from three to fifteen feet below the surface; and, taking the average, the whole dike, from one end to the other, may be about four feet below the surface of low water at the spring tides. But near the middle is about 100 yards of a shapeless mass, where the height rises to eighteen or twenty feet above high water: the greater part is about four feet below the surface at low water: it is sufficiently high, however, to break the force of the waves, and to afford the port of Cherbourg secure anchorage, in some winds, for about forty sail of the largest vessels.

Buonaparte, during the whole of the last war, bestowed great personal attention on the navy of France, and his vast plans were in considerable forwardness at the period of his expedition into Russia. He had resolved to possess a fleet of 200 sail of the line, and Cherbourg formed, in his view, a grand point of security in forming a junction between his two great projected fleets of Brest and Antwerp.

Here he therefore ordered a large dock-yard to be established both for the construction of and for repairing the largest ships of war, and a basin to be dug that should contain fifty or sixty sail of the line; dry-docks and slips for building and repairing were to crown the whole, and make this a first-rate naval port. The noble basin thus projected was finished in 1813, at an expense, as he is said to have asserted, of £3,000,000 British sterling. The wet-dock to communicate with it he left in progress.

A printed description of this great work, which took ten years in carrying into execution, is contained in a letter from M. Pierre-Aime Lair, secretary to the Society of Agriculture and Commerce of Caen, who was present at the ceremony of opening and consecrating the great basin, in presence of the empress Maria Louisa, the 27th of August 1813.

He describes the basin to be excavated out of a rock of granite, schist, or gneis, the density and hardness of which increased as the workmen descended from the surface. He compares it to an immense trough dug out of a single stone, and capable of containing many millions of cubic feet of water.

'We now know, however,' says an able writer in the Supplement to the Encyclopædia Britannica, article BREAK-WATER, 'that Mr. Lair is mistaken, that it is not one mass of rock, but rock and gravel mixed, that the whole of the sides are cased with a well-constructed wall of red granite, and that a noble quay, built of the same material and extending between the two forts of Galet and Homet, separates the basin and wet-dock from the sea.'

The dimensions of the new basin are stated by Mr. Lair to be about 900 feet in length by 720 in width, and the average depth fifty-five feet from the edge of the quay; and, as this edge is five feet above the high water mark of the equinoctial spring-tides, the depth of water in the basin is then fifty feet, and the mass of water, after making allowance for a slope of the solid sides inward in an angle of forty-five degrees from the height of about twenty-five feet, amounts to about 30,000,000 cubic feet; and is calculated to contain about thirty sail of the line.

'We have reason to think that it is considerably larger,' says the above writer, or 'about 1000 feet by 770 feet, and consequently contains a surface of about eighteen acres, which, at three per acre, will contain fifty-four sail of the line, and the adjoining wet-dock, when finished, an equal number. The latter is at this time about two-thirds completed, and from 300 to 400 men are employed in blasting the rock and building granite walls. The dike or break-water seems to be abandoned; the works having long been stopped, and the stone vessels going rapidly to decay. The French officers say, indeed, that it has occasioned the roadstead to become shallower, by the deposition of sand that has taken place.'

The canal leading from the harbour into the basin is at right angles to the latter, and its direction E. N. E. It is 196 feet 8 inches in width between the two moles in the direction of their axis, 308 feet 8 inches wide at its opening into the basin, and 274 feet long from the axis of the moles or piers to the line of wall forming the side of the basin. The basin is without gates, so that the swell of the road is uniformly felt within it.

CHERIBON, SHERIBON, or TCHERIBON, a principality of Java, in the middle of the coast, on the north side of the island. Its productions are timber, coffee, indigo, sugar, and pepper, in all of which it is very fertile. Not far from the coast is a volcanic mountain which sometimes discharges smoke. In the forests there is a kind of speckled deer, and the rhinoceros is common on the hills. The horses are also esteemed, but small. At present there are four native powers, which divide the principality between them; but who were voluntarily under the dominion of the British. The population has been estimated at 90,000.

CHERIBON, the capital of the above principality, is situated at the bottom of a bay of that name. It was made a station of some importance by the Dutch, and was well peopled on the arrival of the British in Java, in 1812, when a pestilential disease depopulated it, and it has never recovered the calamity. Travelling distance from Batavia 170 miles east.

CHERILUS, of Samos, a Greek poet, who flourished A. A. C. 479. He sung the victory gained by the Athenians over Xerxes, and was rewarded with a piece of gold for every verse. His poem had afterwards the honor of being rehearsed yearly with the works of Homer.

CHERISH, *v. a.* }
CHER'ISHER, *n. s.* } Fr. *cherir*, from Lat. *charus.* To cheer, nurse,
CHER'ISHMENT, *n. s.* } rish, shelter; to support; to comfort.

> Now it fell so that Fortune list no lenger
> The hyghe pride of Nero to *cherice*:
> For that he were strong, yet was she strenger.
>
> *Chaucer. The Monkes Tale.*

> This child that I tell of, Berinus was his name,
> Was over much *cherished*, which turned hym into grame,
> As yee shul here aftir when time cometh and space;
> For after swete the soure cometh full oft in many a place,
> For as sone as he coud go and also speke,
> All that he set his ey on, or after list to beke,
> Anoon he shuld it have; for no man hym werned.
>
> *Id. Merchant's Second Tale.*

> How manie great ones may remembered be,
> Which in their daies most famouslie did flourish,
> Of whome no word we heare, nor signe now see,
> But as things wipt out with a sponge do perishe,
> Because they living cared not to *cherishe*
> No gentle wits, through pride or covetize,
> Which might their names for ever memorize.
>
> *Spenser's Ruines of Time.*

> One only lives her age's ornament,
> That with rich bounty, and dear *cherishment*,
> Supports the praise of noble poesie.
>
> *Id. Tears of the Muses.*

> Whenever Buckingham doth turn his hate
> Upon your grace, and not with duteous love
> Doth *cherish* you and yours, God punish me
> With hate in those where I expect most love.
>
> *Shakspeare.*

Magistrates have always thought themselves concerned to *cherish* religion, and to maintain in the minds of men the belief of a God and another life. *Tillotson.*

One of their greatest praises it is to be the maintainers and *cherishers* of a regular devotion, a reverend worship, a true and decent piety. *Spratt.*

> But still the wretched maid no comfort knows,
> And with resentment *cherishes* her woes. *Gay.*

CHERLERIA, in botany, a genus of the trigynia order, and decandria class of plants. Natural order twenty-second, caryophylleæ; CAL. pentaphyllous; nectaria, five; bifid, and petal-like; antheræ alternately barren: CAPS. trilocular and three-valved, one-celled, and many seeded. Species only one, a native of the Alps.

CHERMES, in entomology, a genus of insects belonging to the order hemiptera. The rostrum is situated on the breast; the feelers are longer than the thorax; the four wings are deflected; the thorax is gibbous; and the feet are formed for leaping. There are twenty-four species; and the trivial names are taken from the plants which they frequent. The following are the most remarkable:—1. C. abietis, the fir-tree chermes, as well as several other species, are provided at the extremity of their body with a sharp-pointed implement which lies concealed. This they draw out to deposit their eggs, by making a puncture in the plant; and thus produce that enormous scaly protuberance that is to be found at the summit of the branches of that tree, and which is formed by the extravasation of the juices occasioned by the punctures. The young larvæ shelter themselves in cells contained in the tumor. 2. C. buxi, the box tree chermes, produces no tubercle; but its punctures make the leaves of that tree bend and grow hollow in the shape of a cap, which, by the union of these inflected leaves, produces at the extremity of the branches a kind of knob, in which the larvæ of that insect find shelter. The box chermes, as well as some others, has yet another peculiarity, viz. that the larva and its chrysalis eject at the anus, a white sweet-tasted matter, that softens under the touch, and is not unlike manna. This substance is found in small white grains within the balls, formed by the box leaves; and a string of the same matter is often seen depending from the anus of the insect. 3. C. ficus, one of the largest of the genus, is brown above and greenish beneath. The antennæ, likewise brown, are large, hairy, and one-third longer than the thorax. The feet are yellowish, the wings large, twice the length of the abdomen. They are placed so as to form together an acute roof. The membrane of which they consist is thin and very transparent; but they have brown veins, strongly marked, especially towards the extremity. The rostrum of this species is black, and takes its rise from the lower part of the thorax, between the first and second pair of feet. It is an insect to be met with in great numbers upon the fig-tree.

CHERMITES, or Chernites, in ancient natural history, a species of very bright and white marble or alabaster, called afterwards lygdinum.

CHERNIBS, in antiquity, from χειρ, the hand, and νιπτω, to wash, a vessel wherein the people washed their hands, before they went to religious service.

CHEROKEE Mountains, a name given to a part of the Allegany or Appalachian mountains. See those articles.

CHEROKEES, a once famous nation of American Indians residing on the northern parts of Georgia, and the southern parts of the state of Tennessee. The men are robust, well made, and taller than most other of the American Indians. Their complexion is also brighter. Their women are slender, delicate, and well formed. They were formerly very powerful, but do not at present number more than 2000 fighting men.

The Western Gazetteer, or Emigrant's Directory, a modern American publication now before us, speaks of the numbers of this nation as considerably greater than the above. It estimates the whole population at 14,500, and the warriors at 4000. They still own an extensive district, it is stated in this work, chiefly on the south side of the Tennessee river, to the east of the Chickasaw possessions, and extending from the head branches of the Tombigbee to above the Hiwassee east, and south as far as the Estenaury. The following extract is from the pen of Mr. J. Meigs, sen, who has long resided in the nation as Indian agent. 'In the year 1809, I had a census taken of the number of the Cherokee nation, which amounted to 12,350. The number of males and females were nearly equal—they have considerably increased since that period, so that including a colony of Cherokees that went to settle on the river Arkansas, their number is about 14,500 souls—those who emigrated to Arkansas, as well as those on their ancient grounds, have made considerable advances in acquiring the useful arts, particularly in the manufacture of cotton and woollen cloth. They raise the cotton, and the indigo for dying their yarn; they are good weavers, and have upwards of 500 looms: most of the looms are made by themselves; they have more than 500 ploughs—this greatly increased the tillage of their lands; they have large stocks of black cattle and horses, swine and some sheep; they have domesticated poultry in plenty: and, having now an abundance of the necessaries of life, their population proportionably increases. By means of some schools, many of their young people read and write. A great part of the men have adopted our modes of dress; and the females without exception dress in the habits of the white people. Some of them who are wealthy, are richly dressed. They are remarkably clean and neat in their persons: this may be accounted for by their universal practice of bathing in the numerous transparent streams of water which in almost every direction run through their country. Men, women and children, practise bathing, which undoubtedly contributes to their health. All can swim, and this is often of great convenience, as no river can impede their way in travelling. When the females bathe, they are never exposed: any improper conduct towards them would be held in detestation by all. Since I have been first in that nation, a young white man solicited the hand of a young Cherokee woman. She refused his offer, and objected, as a principal reason, that he was not clean in his appearance, that he did not as the Cherokees do—bathe himself in the rivers. Ablution with these people was formerly a religious rite. It is not now viewed by them in this light, but it is nearly allied to a moral virtue.

'I have not been an inattentive spectator of these people in various situations; in their forests, in their houses, in their schools, and in their public councils. The progress of their children in their schools has been as great as that of any other children, in acquiring the knowledge of letters and of figures. Nature has given them the finest forms; and can we presume that God has withheld from them correspondent intellectual and mental powers of mind. No man who has had public business to transact with them can have a doubt of the capacity of their minds. Their hospitality in their houses is every where acknowledged; their bravery in the field is also acknowledged by those who acted with them in the late war against the hostile Creeks. If a statuary should want models for the human figure, he will find the most perfect amongst the southern Indian tribes south of the Ohio river. About one-half of the Cherokee nation are of mixed blood by intermarriages with the white people. Many of these are as white as any of our citizens. There are some of the aboriginal Cherokees, who have never used any particular care to guard their faces from the action of the sun, who have good complexions. I have frequently attended at the schools for the instruction of the Indian children, and seen them by classes go through their exercises. On these occasions, I have seen tears of joy steal down the cheeks of benevolent men, men who rejoice at the diffusion of knowledge amongst this long-lost part of the human race. The Cherokees universally believe in the being of God; they call him the Great Spirit; they mention him with reverence; with them his attributes are power and goodness. They never profane the name of God in their own language. They have no series of words that they can combine to profane the name of God.'

CHERON (Elizabeth Sophia), a celebrated painter in enamel, which was also her father's profession, was the daughter of Henry Cheron, born at Paris in 1648. Her father early observed her passionate fondness for his art, and for design and coloring generally. She soon acquired great reputation by her performances; particularly in her portraits, which, independently of their striking resemblance, were elegantly disposed and well-colored, and finished; she also painted in history; employed herself much in drawing from the antique, and excelled in copying the figures on gems. Receiving early impressions in favor of the Catholic religion from her mother, at a mature age, she abjured her father's profession of Calvinism, and thus facilitated in 1676 her admission into the Academy of Painting. Her genius was considerable in music and poetry, as well as painting; and many of her compositions in verse were esteemed by Rousseau. Her eminence in the fine arts obtained for her also a seat in the Academy of Ricovrati at Padua; and as she played well on the lute, and had occasional concerts, her house was frequented by many distinguished persons of taste. She married, at the age of sixty, M. Le Hay, engineer to the king, and soon after, viz. in 1711, died at Paris, aged sixty-three. There are a series of gems engraved partly from her own designs, but mostly from the antique; of these, three were etched by herself, viz. Bacchus and Ariadne, Mars and Venus, and Night scattering her poppies. She also engraved a Descent from the Cross, and a Drawing-book, io consisting of thirty-six prints.

Cheron (Louis), the youngest brother of the foregoing, was born at Paris in 1660; and having acquired the first principles of painting in his own country, was enabled by the liberality of his sister to visit Italy, where he remained eighteen years. His models were the works of Raphael and Julio Romano; but though he drew correctly, and composed with facility, he never attained the grace of the Italian masters; his heads frequently having a ferocious air. He was obliged to leave France as a Protestant, and, in 1695, sought a refuge in England, where he found a patron in the duke of Montague. Cheron was a man of enlarged ideas and correct morals; so that he refused, it is said, to paint for a nobleman a licentious subject. He died at London in 1713.

CHERONEA, in ancient geography, a town of Greece, in Bœotia, on the confines of Lebadia, formerly called Arne. On the plains of this neighbourhood are two trophies, which are said to have been erected by the Romans and Sylla, in commemoration of a victory obtained over the army of Mithridates. The Thebans who perished in their contest against Philip, were buried near Cheronæa, and over their tomb was placed a lion. The divinity of the Cheronæans was the sceptre which Vulcan made for Jupiter, called 'the lance:' from Jupiter it was transferred to Mercury, and at length it descended to Agamemnon, and is celebrated by Homer.

CHER'RY, *n. s.* & *adj.*
Cher'ry-stone, *n. s.*
Cher'ry-tree, *n. s.*
Cher'ry-cheeked, *adj.*
} Κέρασος; Lat. *cerasus*; Fr. *cerise*. A fruit said to be brought from Cerasus to Rome by Lucullus. It is of various species. The adjectives are used figuratively, to describe any thing that bears a resemblance to the cherry.

Her goodly eyes lyke saphyres shining bright,
Her forehead yvory white,
Her cheekes lyke apples which the sun hath rudded,
Her lips lyke *cherries* charming men to byte.
Spenser.

So her with flattering words he first assaid;
And after pleasing gifts for her purvaid,
Queene-apples and red *cherries* from the tree,
With which he her allured and betraid
To tell what time he might her lady see
When she herselfe did bathe, that he might secret be.
Id.

Shore's wife hath a pretty foot
A *cherry* lip, a passing pleasing tongue.
Shakspeare.

Some ask but a pin, a nut, a *cherry-stone*; but she, more covetous, would have a chain. *Id.*

July I would have drawn in a jacket of light yellow, eating *cherries*, with his face and bosom sunburnt. *Peacham.*

I warrant them *cherry-cheeked* country girls.
Congreve.

When to the brethren first, with fervent zeal,
The Spirit moved thy yearnings to reveal,
How did I joy thy trembling lips to see,
Red as the *cherry* from the Kentish tree! *Gay.*

Cherry, Barbadoes. See Malpighia.
Cherry, Bird. See Prunus.
Cherry, Cornelian. See Cornus.
Cherry, Dwarf. See Lonicera.
Cherry, Hottentot. See Cassine.

Cherry, Laurel. See Prunus.

Cherry of the Alps. See Lonicera.

CHE'RRYPIT, *n. s.* From cherry and pit. A child's play, in which they throw cherry-stones into a small hole.

> What, man! 'tis not for gravity to play at *cherry-pit*.
> *Shakspeare.*

Cherry Tree See Prunus.

Cherry, Winter. See Physalis and Solanum.

CHERSO, a considerable island in the Gulph of Venice, near Croatia. The air is good, but the soil stony; however it abounds in wine, cattle, oil, and excellent honey. Another island, Osero, is so near as frequently to be considered and described with it. A narrow channel only, over which is a bridge, separates them; and together they are about sixty miles long. Population about 10,000. The chief towns are Cherso, Lussin Great and Little, and Osero.

CHERSON, a town and government of European Russia, on the north bank of the Dnieper, ten miles below the mouth of the Ingulec. The church and many of the houses are built in elegant taste. The empress Catharine II. intended it as the chief mart for all commodities exported and imported from the Euxine. It has a dock for large vessels, from which several men of war and merchant ships have been launched. It is supplied with fuel by reeds only, of which there is an inexhaustible forest in the shallows of the Dnieper, opposite to the town. Rails and temporary houses are made of them, as they are tall and strong. They also afford shelter to various kinds of aquatic birds, some of which are very beautiful. In 1787 the late empress made a triumphant journey to this capital, where she met the emperor Joseph II. Her intention, it is said, was to have been crowned queen of Taurica, and empress of the east. But she was obliged to rest contented with inscribing over one of the principal gates of this city, 'Through this gate lies the road to Byzantium.' In this city, the celebrated Mr. Howard fell a victim to fever in 1790; and prince Potemkin, the great projector of the erections here, lies buried in the great church. Cherson is fifty miles east of Ockzacow. Population about 10,000

CHERSONESUS, from χερσος, land, and νησος, an island, a peninsula; a tract of land almost surrounded by the sea, but joined to the main land by a narrow neck or isthmus. In ancient geography, it was a name applied to several peninsulas, particularly to

Chersonesus Aurea, the Golden Chersonese, in ancient geography, a peninsula described by Ptolemy as stretching directly from north to south, and having at its southern extremity Sabana Emporium, the latitude of which he fixes at three degrees beyond the line. To the east he places what he calls the Sinus Magnus, or great bay; and in the most remote part of it the station Catigara, the utmost boundary of navigation in ancient times. To this he affixes 8½° of southern latitude.

Beyond this latitude he declares the earth to be altogether unknown, and asserts that the land turns thence to the westward, and stretches in that direction till it joins the promontory of Prassum in Ethiopia, which terminated in his system, the continent of Africa. M. D'Anville assigns to the present peninsula of Malacca the position of the Golden Chersonesus of Ptolemy; but, instead of the direction which he has given it, we know that it bends some degrees towards the east, and that Cape Romania, its southern extremity, is more than a degree to the north of the line. This geographer considers the gulf of Siam as the great bay of Ptolemy; but the position on the east side of that bay, corresponding to Catigara, is actually as many degrees to the north of the equator as Ptolemy supposed it to be to the south of the line. Major Rennell has given the sanction of his approbation (Introd. p. 39.) to the geographical ideas of M. D'Anville, and they have been generally adopted. But M. Gosselin, in 'The Geography of the Greeks analysed, &c.' differs from M. D'Anville, with respect to many of his determinations. According to this writer, the Magnum Promontorium, which D'Anville concludes to be Cape Romania, is the point of Bragu, near to which he places Zaba, supposed by D'Anville to be situated on the strait of Sincapura or Malacca. The Magnus Sinus of Ptolemy he maintains to be the same with the gulf of Martaban, and not the gulf of Siam; and the position of Catigara corresponds, as he attempts to prove, to that of Mergui, a considerable port on the west coast of Siam. Thinæ, or Sinæ Metropolis, which M. D'Anville removes as far as Sin-hoa in the kingdom of Cochin-China, is situated, according to M. Gosselin, on the same river with Mergui and now bears the name of Tana-serim. The Ibadii insula of Ptolemy, which M. D'Anville determines to be Sumatra, is, by Gosselin's arrangement, one of that cluster of small isles which lie off this part of the coast of Siam. Gosselin further contends, that the ancients never sailed through the straits of Malacca, had no knowledge of Sumatra, and were altogether unacquainted with the eastern ocean. With regard to the Golden Chersonese of Ptolemy in particular, he observes that what chiefly characterises it is the mouth of a large river, which there divides itself into three branches before it joins the sea. These channels appear so considerable that each of them bore the name of a river, the Chrysoana, the Palandar, and the Attabas. It does not appear that Ptolemy knew the source of this river, or that he had any knowledge of the interior of this country, as he does not determine the position of any place. 'Without detailing the other arguments of this writer, we may observe,' says an able contemporary, 'that upon comparing Ptolemy's map with that of the country, there seems little reason to doubt that the Golden Chersonese is the southern part of the kingdom of Pegu, which may be considered as insulated. In the southern part of the Malayan peninsula, which has hitherto been regarded as the Golden Chersonese, the river Johr is so small a stream, that it could never have supplied the three important mouths noted by Ptolemy; and his delineation of the country of the Sinæ, stretching along a western sea, palpably corresponds with Tana-serim; while M. D'Anv map so much contradicts that of Ptolemy as to place the sea on the east of the Sinæ, and proceeding towards the north instead of the south. Moreover, the rivers laid down by Ptolemy, between the mouths of the Ganges, and the Delta of the Golden Chersonese, amount to five; of which three appear in our maps, but we are ignorant of the southern part of Arracan, which probably contains the other two. The three chief mouths of the Irrawaddy, in the map of Mr. Dalrymple, sensibly correspond, even in the form and manner of division, with those in the Golden Chersonese of Ptolemy; and the bay to the south of Dalla seems to be the Perimulicus Sinus of the Greek geographer, the small river to the east of which is that of Sirian or Pegu. If the Malayan peninsula had been the Golden Chersonese of the ancients, the ancient geographer could not have been wholly ignorant, as he seems to have been, of the straits of Malacca and of the northern part of the great island of Sumatra."

Chersonesus Cimbrica, the modern Jutland, a peninsula of Europe to the north of Germany, supposed to have derived its appellation from the Cimbri who came from thence. It is bounded by the river Elbe on the south, by the German Ocean on the west, and by the Baltic Sea on the north and east; and hence the Cimbri came into Britain. When the Britons formed the fatal resolution of calling in foreign auxiliaries to preserve them from that destruction with which they were threatened by the Scots and Picts, they could find none besides the inhabitants of this country, who were likely to afford them necessary succour and protection; for their nearer neighbours and natural allies, the Gauls, who spoke the same language, and professed the same religion with themselves, were in no condition to give them any assistance; having been invaded, and almost conquered, by the Franks, another German nation. This country was at that time inhabited by three nations, which were called Saxons, Angles, and Jutes; who all sent armies to, and obtained settlements, in Britain. The Danes and Normans afterwards mingled with them in great numbers. See Angles, Jutes, and Saxons.

Chersonesus Magnus, a part of Africa, in Marmarica, near Phthia. Scylax places it opposite to the isle of Crete. The great Chersonesus of Ptolemy is supposed by some to be the present Cape Raccalton in the kingdom of Barca: so called because it forms a peninsula. M. D'Anville places it on the coast north-west of Marmarica, at some distance south-east from the promontory Drepanum.

Chersonesus Parva, a port or castle of Egypt, mentioned by Ptolemy and Strabo; the latter says it was situated on a part of the coast which formed a small promontory, at the distance of seventy stadia south-west from Alexandria.

Chersonesus Taurica, now the Crimea, a large peninsula of ancient Europe, lying between the Euxine Sea, the Palus Mæotis, and the Bosphorus Cimmerius; extending, according to Sir John Chardin, sixty-one leagues from east to west, and about thirty-five from north to south; and joined to the continent by a narrow isthmus about a mile broad. In remote times it was governed by its own sovereigns. Its most ancient inhabitants were the Tauri, or Tauroscythæ, as Pliny and Ptolemy call them, and from them it derives its appellation. The mythologists refer to these times the first voyage of the Greeks into Taurica. In process of time, that people certainly traded here and founded cities. Mithridates, king of Pontus, possessed the peninsula; and, it is said, drew from it annually a tribute of 220,000 measures of grain, and 200,000 talents in silver. It was conquered by the Romans, and given by them to the kings of Bosphorus. Some of the eastern tribes of Asia, known to us by the name of Huns, established themselves here, and many of them remained till the time of the emperor Julian. It afterwards passed to the princes of the family of Jenghis Khan. The cities of note were Taphræ or Taphrus on the isthmus, where Przekop or Precop now stands; Chersonesus, or Chersoni Theodosia, afterwards called Caffa, but now known by its ancient name; Nymphæum, Lagyra, and Charax, seated on the Euxine Sea, and Panticapæum on the Bosphorus. See Crimea.

Chersonesus Thraciæ, or the Chersonesus of Thrace, was a peninsula enclosed on the south by the Ægean sea, on the west by the gulf of Melas, and on the east by the Hellespont, and joined on the north to the continent by a neck of land, about thirty-seven furlongs broad. In former times it was separated from the continent by a wall, called in Greek 'Macrontichos.' The isthmus, connecting with the continent, was, according to Herodotus, thirty-six stadia; according to Strabo, 400. The length of the isthmus, says Herodotus, was 420 stadia; but Scylax says that it was 400. It contained the following cities, viz. Cardea, Agora, Panormus, Alopeconnesus, Eleus, Sestus, Madytos, Cissa, Callipolis, Lysimachia, and Pactye. The Athenians held for some time possession of this peninsula. By Cornelius Nepos, it is said, that at the counsel of the oracle of Delphos, they sent hither Miltiades, the son of Cimon, at the head of a colony. Herodotus tells us that the Dolonces, a people of Thrace, had possession of this peninsula; but, having carried on an unfavorable war with the Absinthians, they sent to consult the oracle. The Pythian recommended their obtaining a colony under the conduct of the first person who offered them an asylum. Accordingly, having sent deputies to Athens, where Pisistratus reigned, they were hospitably treated by Miltiades, the son of Cypselus, a rich and powerful man in that city. Upon their being thus kindly treated, they informed him what was the opinion of the oracle which they had consulted. Upon this, Miltiades engaged a number of the Athenians to accompany him to the Chersonesus, and the Dolonces immediately invested him with the sovereign power. He began his reign with erecting the wall which separated this country from the continent. At his death, he bequeathed the sovereignty to his nephew Stesagoras, who was assassinated; and when this disastrous event occurred, the Pisistratides sent Miltiades, the son of Cimon, and brother of Stesagoras, to take possession of th

government of the Chersonesus. At length the Athenians lost this peninsula; and under the kings of Macedon, after Alexander, it belonged to Thrace.

CHERT, or CHERTZ, *n. s.* From Germ. *quartz*. A kind of flint.

Flint is most commonly found in form of nodules; but it is sometimes found in thin stratæ, when it is called *chert*. *Woodward.*

Grind with strong arm the circling *cherts* betwixt,
Your pure kaolins and petuntses mixed. *Darwin.*

CHERT, PETROSILEX, lapis corneus, or the hornstein of the Germans, is classed by Cronstadt among the silicious earths. See MINERALOGY, index, and PETROSILEX.

CHERTSEY, or CHERTZEY, a market town of Surrey, about seven miles west from Kingston upon Thames; and nineteen west by south of London. This is supposed to be the place where Cæsar led his troops first over the Thames, and here is now a fine bridge of freestone thrown across the river. The town is governed by a bailiff, appointed by letters patent from the exchequer. The principal articles manufactured are malt, iron hoops, and brooms. The hundred of Chertsey is exempted from the jurisdiction of the high sheriff. The market on Wednesday is well supplied with corn, poultry, butchers'-meat, &c. Here is a commodious workhouse, an excellent charity-school, and five alms houses. The porch-house at Chertsey was the place where the poet Cowley ended his days.

CHE'RUB, *n. s.*, CHERU'BICK, *adj.*, CHE'RUBIM, *adj.* } For the substantive, see below. The adjectives signify angelic or angelical, or relating to the cherubim.

Heavens *cherubim*, horsed
Upon the sightless coursers of the air,
Shall blow the horrid deed in every eye,
That tears shall drown the wind. *Shakspeare.*
This fell whore of thine
Hath in her more destruction than thy sword,
For all her *cherubim* look. *Id.*
Thy words
Attentive, and with more delighted ear,
Divine instructor! I have heard, than when
Cherubick songs by night from neighbouring hills
erial musick send. *Milton's Paradise Lost.*
When heaven, and angels, earth and earthly things
Do leave the guilty in their guiltiness—
A *cherub's* voice doth whisper in a child's,
There is a shrine within thy little heart,
Where I will hide, nor hear the trump of doom.
Maturin's Bertram.

CHERUB, a celestial spirit, which by some ingenious writers is placed in the heavenly hierarchy, next in order to the seraphim. All the several descriptions which the Scripture gives us of the cherubim differ from one another; as they are described in the shapes of men, eagles, oxen, lions, and in a composition of all these figures put together. The hieroglyphical representations, in the embroidery upon the curtains of the Tabernacle, were called by Moses, Exod. xxvi. 1, cherubim of cunning work.

CHERUB, in Hebrew, is sometimes taken for a calf or ox. Ezekiel describes the face of a cherub as resembling the face of an ox. The word in Syriac and Chaldee, signifies to till or plough, which is the proper work of oxen. Bailey translates it fulness of knowledge. Grotius says that the cherubim were figures like that of a calf. Bochart thinks they were more like that of an ox, and Spenser is of the same opinion. Clement of Alexandria believes, that the Egyptians imitated the cherubim of the Hebrews in the representations of their sphinxes and hieroglyphical animals. The late learned Mr. Hutchinson bestowed much labor to illustrate the symbolical meaning of the cherubim; which, however varied in their appearance, he considered as pointing forth the Trinity in connexion with the human nature. *See Parkhurst's Lexicon*, under כרב.

CHE'RVIL, *n. s.* Lat *chærophyllum*. An umbelliferous plant.—*Miller.*

CHERVIL, GARDEN. See SCANDIX.

CHERVIL, WILD. See CHÆROPHYLLUM.

CHE'RUP, *v. n.* From cheer; perhaps from cheer up, corrupted to cherup. To chirp; to use a cheerful voice.

The birds
Frame to thy song their cheerful *cheruping*;
Or hold their peace for shame of thy sweet lays.
Spenser.

CHESAPEAKE BAY, an extensive estuary in North America, and one of the largest and safest in the world. It reaches from 37° 10′ to 39° 30′ N. lat., and from 76° to 76° 45′ W. long. at its broadest part. It is about twelve miles broad at the entrance, which is nearly E. N. E. and S. S. W., between Cape Charles on the north and Cape Henry on the south. A sand-bank nearly closes the entrance, leaving only a passage for the smallest vessels on the side of Cape Charles; but on that of Cape Henry it is broad enough and sufficiently deep for ships of the largest size. The general breadth of the bay varies from six to twenty miles, its extent is about 270, and its average depth about nine fathoms. On the eastern side it has many fertile islands, and a few solitary ones on the western shore. It is remarkable, as forming the mouth of several large and navigable rivers; as the Susquehannah, Potomac, Rappahannock, York, and James, besides other streams of minor importance. There are many excellent fisheries in this bay, particularly of herrings and shad; several thousand barrels being annually cured at Potomac and Susquehannah rivers, for inland trade and exportation. It always abounds with excellent oysters and crabs. An incredible number of ducks, swans, and other fowl, frequent this bay; but it is more particularly remarkable for a species of wild duck, called canvas-back, admired for the richness and delicacy of its flesh, which is entirely free from any fishy flavour. It extends through part of Virginia and the greater part of Maryland, and is of the utmost advantage in a commercial view, as it forms the access by water to a number of towns, the most considerable of which are Baltimore and Annapolis, and to which the ships can approach even to the very doors to take in goods.

CHESAPEAKE AND ALBEMARLE CANAL, partly in Virginia and partly in North Carolina, connects Chesapeake Bay with Albemarle Sound

CHESELDEN (William), an eminent anatomist and surgeon, born at Burrow on the Hill, in Leicestershire, and decended from an ancient family in Rutlandshire. He received the rudiments of his professional education at Leicester; and married Miss Deborah Knight, by whom he had one daughter. In 1713 he published his Anatomy of the Human Body, in one volume 8vo; and in 1723 A Treatise on the High Operation for the Stone. He contributed by his writings to raise his profession to its present eminence. His great work entitled Osteographia was published in 1733, and it contains the most accurate delineations of the human bones in existence. In February 1737 Mr. Cheselden was appointed surgeon to Chelsea Hospital. He died at Bath, April 11th, 1752.

CHESHAM, a market town of Bucks, on the borders of Hertfordshire, twelve miles south-east of Aylesbury, and twenty-seven west by north of London. It stands in a fertile vale, and consists of three streets. The principal manufacture is lace, and wooden ware. Besides the church, in the middle of the town, there are four meeting-houses, and a charity-school. Market on Wednesday, chiefly for corn.

CHESHIRE, a county of England, separated on the north from Lancashire by the river Mersey, and bordering a little on Yorkshire to the north-east. On the east it is bounded by Derbyshire and Staffordshire, on the south by Shropshire and part of Flintshire, on the west by Denbighshire and another part of Flintshire, from which it is separated by the river Dee; while the north-west part of the county, formed into a peninsula about thirteen miles long and six broad, by the waters of the Mersey and the Dee, touches upon the Irish Sea. It is thirty-one miles broad from north to south, and forty-two in length from east to west, exclusive of the peninsula and a narrow strip of land running up to Yorkshire, between Derbyshire and Lancashire. It contains about 1200 square miles, or nearly 700,000 acres, cultivated in greater proportion than most other counties in England; the waste land forming not more than about 1-25th part. It is a county palatine, having a chief justice of its own, and is divided into seven hundreds, containing eighty-six parishes, one city (Chester), twelve considerable market towns, viz. Altrincham, or Altringham, Congleton, Frodsham, Knutsford, Macclesfield, Malpas, Middlewich, Nantwich, Northwich, Sandbach and Stockport, besides two of less note, Halton and Great Neston. By the latest surveys it has been said to contain 670 villages, 458 townships, and in 1831, 335,000 inhabitants, of whom three-fifths are employed in trade and manufactures, and the rest in agriculture.

The soil is generally rich, composed of a mixture of sand and clay; towards Yorkshire, and in a few other places, the surface consists of peat moss; in the greater part of the forest of Delamere a barren white sand, or gravel, forms the predominant soil. This county is not generally well wooded, though it has some extensive forests, parks, and coppices; oak timber principally abounds, from the best to the most inferior quality in Dunham park, near Altrincham, there are some remarkably large old oaks, while the finest beech trees are found near Alderley.

Cheshire is generally flat; there is a mountainous range on the east, connected with Yorkshire and Derbyshire, and the country is rather elevated in the district of Delamere forest and to the south of Altrincham; there is also a bold promontory jutting out on the Mersey near Frodsham; but four-fifths of the whole county scarcely rise more than from 100 to 200 feet above the level of the sea. The principal rivers that water this county are the Dee, the Weever, and the Mersey, though the latter, as it forms the northern boundary. seems equally to belong to Lancashire. The source of the Dee is in Wales, and, flowing between Denbighshire and Flintshire, it runs along the edge of the county to within five miles of Chester, when it assumes a north-east and north course, till, just on the east side of that city, it flows west and south-west, surrounding it almost like a horse-shoe. It then bends a little to the north through Flintshire, and, forming an estuary about five miles broad and ten long, it falls into the sea below Parkgate. The Mersey, in its principal branch, appears to rise in Yorkshire, from which it just skirts Lancashire; passing by Stockport, and receiving several small streams in its course, it forms the northern boundary, until, below Runcorn, it widens into an estuary longer than that of the Dee, though not so wide, and empties itself into the Irish Sea near Liverpool. The Weever or Weaver rises in the south of Cheshire, and flowing due north passes by the towns of Nantwich and Northwich, whence it takes a westerly direction and falls into the estuary of the Mersey below Runcorn. This county is also intersected by the waters of the Dane, the Tame, and other smaller streams, which fall into the larger rivers in different directions. Besides these there are two large canals, one reaching across the county from Staffordshire to Runcorn, pursuing a course of about thirty miles, and, after having passed through a tunnel of 1241 yards long at Preston-on-the-hill, another at Saltersfield 350 yards long, and a third near that place of 572 yards, it joins the Mersey at Runcorn; the other, more to the south, forms a junction between the waters of the Weever and Dee, and opens a communication between Nantwich and Chester There are also several small lakes.

Cheshire produces coal in considerable quantities in the north-eastern parts and in the hundred of Wirral, where there is a colliery reaching a mile and three quarters under the Dee. Copper, lead, and cobalt, are also found, but not in great abundance. The rock salt and salt springs, as they form a great part of the trade of the middle districts, deserve more particular notice. There is some reason to believe that the springs were known to the ancient Britons, but the rock salt was discovered so recently as the year 1670. The former are found at depths varying from twenty to forty yards, in the valley that is watered by the rivers Weever and Wheelock; those near the hamlet of that name are sixty yards deep; the strongest are found near Anderton. The brine is raised by a steam engine, and

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held it about 200 years,

when the Danes got possession of it, but held it only a few years, for king Alfred, A.D. 877, conquered them and made Cheshire a province of the West Saxon kingdom, appointing Etheldred duke or governor. The family of Etheldred held their dignity for six generations, when Canute the Dane dispossessed them, and committed the government to the earls of Chester, three only of whom enjoyed it, as, in consequence of William the Conqueror and his Normans subduing England, the Saxon nobility ended. William erected the county into a palatinate, and gave it to his nephew Hugh Lupus, to whom he granted the same authority in it that he himself held in the rest of the kingdom. This power continued in the family of Lupus until the reign of Henry III., when the seventh earl of the Norman line dying without issue, Henry took the earldom into his own hands, and bestowed it on his son, who did not take the title, but conferred it on Edward of Caernarvon, his son; and ever since the eldest sons of the kings of England have always been earls of Chester. The unbounded power of the palatinates was at last reduced by Henry VIII. All cases of crimes, however, except error, foreign pleas and foreign voucher, and high treason, are still determined within the shire. Cheshire sends six members to parliament, two for the city and four for the county.

CHESIL BANK, a remarkable bank of pebbles, extending on the coast of the county of Dorset, from the isle of Portland to the mainland at Abbotsbury, about seventeen miles in length, and in some places nearly a quarter of a mile in breadth. It is one of the largest ridges of pebbles known. The stones are of the size of an egg, or larger, near Portland, and gradually diminish towards Abbotsbury, to the size of large shot.

CHESNE (Andrew Du), styled the father of French history, was born in 1584. He wrote,—1. A History of the Popes. 2. A History of England. 3. An Enquiry into the Antiquities of the Towns of France. 4. A History of the Cardinals. 5. A Bibliotheca of the Authors who have written the History and Topography of France, &c. He was crushed to death by a cart, in going from Paris to his country house at Verriere, in 1640.

CHE'SLIP, *n. s.* A small vermin, that lies under stones or tiles.

CHESTNUT. See FAGUS

CHESS, *n. s.*
CHESS-BOARD, *n. s.*
CHESS-MAN, *n. s.*
CHESS-PLAYER, *n. s.*
} Sans. and Hind. *chaturanga*, the four bodies; Arab. and Pers. *shatrang*; Ital. *scacco*; Fr. *echecs*. Mr. Thomson observes of the appellation of this intricate game, that in Europe it seems to have been confounded with Arabic *shekh*, Pers *shah*, Span. *xeque*, a king, a chief, because the issue of the game depends on a piece so called in the East.

> At *chesse* with me she gan to play;
> With hire false draughtes ful divers,
> She stale on me and toke my fees;
>
> * * *
>
> Therewith Fortune ysayd: cheke here
> And ' mate,' in the myd poynt of the checkere,

With a paunè errant. Alas!
Ful craftyer to play she was
Than Athalus, that made the game,
First of the *chesse*; so was his name.

Chaucer's Boke of the Duchesse.

William the Conqueror, in his younger yeares, playing at *chesse* with the prince of France (Dauphiné was not annexed to that crown in those dayes), losing a mate, knocked the *chess-board* about his pate, which was a cause afterward of much enmity between them.

Burton. Anat. Mel.

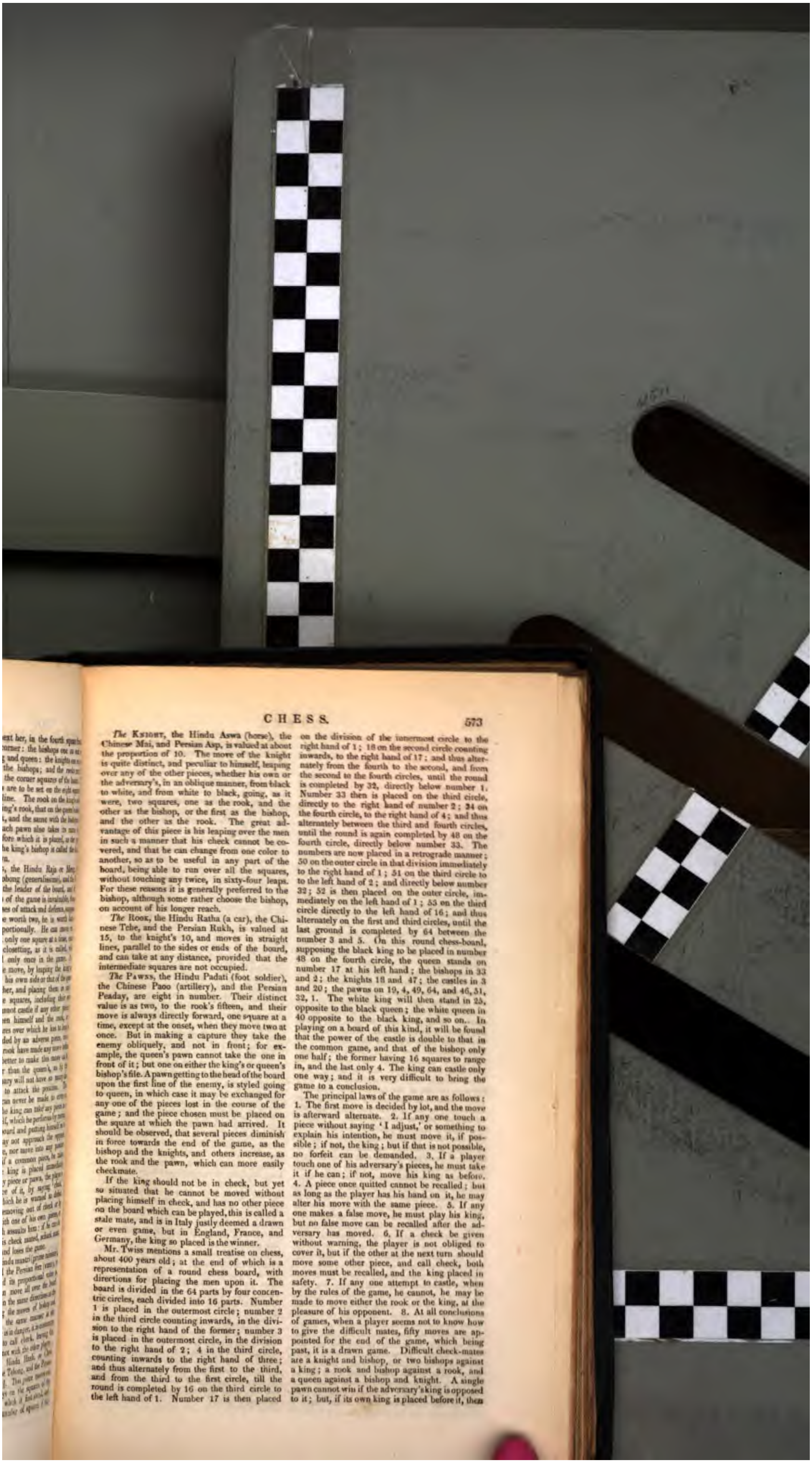
CHESS, an ingenious and scientific game played in Europe by two persons, on a square board, containing sixty-four rectangular chequers, alternately black and white. It is not in the slightest degree dependent on chance, and there is, perhaps, no game of such high antiquity, and such general practice; it being not confined to Europe only, but being played in every part of Asia, although with several important variations. That this game is of oriental origin there can be no doubt; but the honor of the invention has long been a subject of dispute among several eastern nations. Sir William Jones, in a laborious treatise on this subject, adjudges the preference decidedly to Hindostan; the rules of chess being mentioned in their oldest law books, and it having been a common game in that country time immemorial. It is there called chaturáji (the four kings) being played with four sets of men, and is said to have been the invention of Ravan, king of Ceylon, in order to amuse himself with a representation of a campaign, when his metropolis was closely besieged by Rama, about the year of the world 1500. The honorable Mr. Daines Barrington, in a paper published in the Archæologia, and Mr. Eyles Irwin, in a letter to the Irish Academy, 1793, advocate the opinion that China was the nation that first produced this game; in support of which proposition Mr. Irwin brings forward the M. S. of a Chinese mandarin, giving an account of the invention by Hansing, a general of that country, in order to amuse and quiet his troops, who were unruly in their winter quarters. But as this is dated the 379th year after Confucius, about 172 years before Christ, the Brahmin account has at all events the priority. But, as the common European method of playing will be probably most interesting to our readers, we shall first endeavour to give a sketch of that game, and then proceed to notice the Hindu, Chinese, and Persian methods; these being the principal varieties, although caprice has at different times adopted several minor distinctions.

THE EUROPEAN GAME.—Each player has sixteen men, which are colored black and white, red and white, or other differing colors, for the sake of distinction, and ranged at opposite ends on the first two lines of the board, which is placed with the white corner to the right hand. Of the pieces eight are termed dignified, and have the power of retrograding; these are the king, the queen, two bishops, two knights, and two rooks or castles; the other eight can never retreat, and are called pawns. In order to place the men rightly on the board, let the white, red, or dark queen be set on her own color, in the first line, on the fourth square from the corner: the king next her, in the fourth square from the opposite corner: the bishops one on each side of the king and queen: the knights one on each side, next the bishops; and the rooks next the knights, in the corner squares of the board. The eight pawns are to be set on the eight squares of the second line. The rook on the king's side is called the king's rook, that on the queen's side the queen's rook, and the same with the bishops and knights. Each pawn also takes its name from the piece before which it is placed, as the pawn in front of the king's bishop is called the king's bishop's pawn.

The KING, the Hindu Raja or Meng, the Chinese Choohong (generalissimo), and the Persian Shah, is the leader of the board, and from the principles of the game is invaluable, though, for the purposes of attack and defence, supposing the pawn to be worth two, he is worth but six and a half proportionally. He can move in all directions, but only one square at a time, except in castling or closetting, as it is called, which can be effected only once in the game. It is done in a single move, by leaping the king and rook, either on his own side or that of the queen, one over the other, and placing them in any of the intermediate squares, including their own. But the king cannot castle if any other piece or pawn be between himself and the rook, or if any of the squares over which he has to leap be covered or guarded by an adverse piece, nor if either he or the rook have made any move before. It is in general better to make this move on the king's side rather than the queen's, as by that means the adversary will not have so many disengaged pawns to attack the position. This move, however, can never be made to cover an actual check. The king can take any piece in a square next himself, which he performs by moving the piece off the board and putting himself in its place. But he may not approach the opposite king by one square, nor move into any position where he could, if a common piece, be taken. When the adverse king is placed immediately under attack by any piece or pawn, the player is to give him notice of it, by saying 'check,' schack (king) by which he is warned to defend himself, either by removing out of check or by covering himself with one of his own pieces, or by taking that which assaults him: if he can do neither of these he is check mated, schack maat, (the king is weary) and loses the game.

The QUEEN, the Hindu mantri (prime minister), the Chinese son, and the Persian ferz (vizier), is the second piece, and its proportional value is 23¼. The queen can move all over the board (if the road is open) in the same directions as the king, thus combining the moves of bishop and rook. She takes in the same manner as she moves, and, when she is in danger, it is customary among most players to call check, leaving the option of moving or not with the other player.

The BISHOP, the Hindu Hasli, or Cheita (elephant), the Chinese Tehong, and the Persian Fil Pil, is valued at 9¼. This piece moves and takes obliquely, always on the squares of the same color, as that on which it first stood, and is not limited to any number of squares if the road is open.



The **Knight**, the Hindu Aswa (horse), the Chinese Mai, and Persian Asp, is valued at about the proportion of 10. The move of the knight is quite distinct, and peculiar to himself, leaping over any of the other pieces, whether his own or the adversary's, in an oblique manner, from black to white, and from white to black, going, as it were, two squares, one as the rook, and the other as the bishop, or the first as the bishop, and the other as the rook. The great advantage of this piece is his leaping over the men in such a manner that his check cannot be covered, and that he can change from one color to another, so as to be useful in any part of the board, being able to run over all the squares, without touching any twice, in sixty-four leaps. For these reasons it is generally preferred to the bishop, although some rather choose the bishop, on account of his longer reach.

The **Rook**, the Hindu Ratha (a car), the Chinese Tche, and the Persian Rukh, is valued at 15, to the knight's 10, and moves in straight lines, parallel to the sides or ends of the board, and can take at any distance, provided that the intermediate squares are not occupied.

The **Pawns**, the Hindu Padati (foot soldier), the Chinese Paoo (artillery), and the Persian Peaday, are eight in number. Their distinct value is as two, to the rook's fifteen, and their move is always directly forward, one square at a time, except at the onset, when they move two at once. But in making a capture they take the enemy obliquely, and not in front; for example, the queen's pawn cannot take the one in front of it; but one on either the king's or queen's bishop's file. A pawn getting to the head of the board upon the first line of the enemy, is styled going to queen, in which case it may be exchanged for any one of the pieces lost in the course of the game; and the piece chosen must be placed on the square at which the pawn had arrived. It should be observed, that several pieces diminish in force towards the end of the game, as the bishop and the knights, and others increase, as the rook and the pawn, which can more easily checkmate.

If the king should not be in check, but yet so situated that he cannot be moved without placing himself in check, and has no other piece on the board which can be played, this is called a stale mate, and is in Italy justly deemed a drawn or even game, but in England, France, and Germany, the king so placed is the winner.

Mr. Twiss mentions a small treatise on chess, about 400 years old; at the end of which is a representation of a round chess board, with directions for placing the men upon it. The board is divided in the 64 parts by four concentric circles, each divided into 16 parts. Number 1 is placed in the outermost circle; number 2 in the third circle counting inwards, in the division to the right hand of the former; number 3 is placed in the outermost circle, in the division to the right hand of 2; 4 in the third circle, counting inwards to the right hand of three; and thus alternately from the first to the third, and from the third to the first circle, till the round is completed by 16 on the third circle to the left hand of 1. Number 17 is then placed on the division of the innermost circle to the right hand of 1; 18 on the second circle counting inwards, to the right hand of 17; and thus alternately from the fourth to the second, and from the second to the fourth circles, until the round is completed by 32, directly below number 1. Number 33 then is placed on the third circle, directly to the right hand of number 2; 34 on the fourth circle, to the right hand of 4; and thus alternately between the third and fourth circles, until the round is again completed by 48 on the fourth circle, directly below number 33. The numbers are now placed in a retrograde manner; 50 on the outer circle in that division immediately to the right hand of 1; 51 on the third circle to to the left hand of 2; and directly below number 32; 52 is then placed on the outer circle, immediately on the left hand of 1; 53 on the third circle directly to the left hand of 16; and thus alternately on the first and third circles, until the last ground is completed by 64 between the number 3 and 5. On this round chess-board, supposing the black king to be placed in number 48 on the fourth circle, the queen stands on number 17 at his left hand; the bishops in 33 and 2; the knights 18 and 47; the castles in 3 and 20; the pawns on 19, 4, 49, 64, and 46, 51, 32, 1. The white king will then stand in 25, opposite to the black queen; the white queen in 40 opposite to the black king, and so on.. In playing on a board of this kind, it will be found that the power of the castle is double to that in the common game, and that of the bishop only one half; the former having 16 squares to range in, and the last only 4. The king can castle only one way; and it is very difficult to bring the game to a conclusion.

The principal laws of the game are as follows: 1. The first move is decided by lot, and the move is afterward alternate. 2. If any one touch a piece without saying 'I adjust,' or something to explain his intention, he must move it, if possible; if not, the king; but if that is not possible, no forfeit can be demanded. 3. If a player touch one of his adversary's pieces, he must take it if he can; if not, move his king as before. 4. A piece once quitted cannot be recalled; but as long as the player has his hand on it, he may alter his move with the same piece. 5. If any one makes a false move, he must play his king, but no false move can be recalled after the adversary has moved. 6. If a check be given without warning, the player is not obliged to cover it, but if the other at the next turn should move some other piece, and call check, both moves must be recalled, and the king placed in safety. 7. If any one attempt to castle, when by the rules of the game, he cannot, he may be made to move either the rook or the king, at the pleasure of his opponent. 8. At all conclusions of games, when a player seems not to know how to give the difficult mates, fifty moves are appointed for the end of the game, which being past, it is a drawn game. Difficult check-mates are a knight and bishop, or two bishops against a king; a rook and bishop against a rook, and a queen against a bishop and knight. A single pawn cannot win if the adversary's king is opposed to it; but, if its own king is placed before it, then the pawn may win. Two pawns against one must win in most cases; but the player, possessing the two, should avoid exchanging one of them for his adversary's pawn. A pawn, with any piece, must win in every case, except with a bishop, when the pawn is on a rook's file, and the bishop does not command the square where the pawn must go to queen. Two knights, without any other man, cannot give checkmate. Two bishops may win. A knight, with a bishop, may win. A rook against either a knight or a bishop makes a drawn game; as also does a rook and a knight against a rook. A rook with a bishop against a rook may win. A rook with either a bishop or a knight against a queen make a drawn game. A queen against a bishop and a knight may win. A queen against a rook with two pawns makes a drawn game. A rook against either a bishop or a knight with two pawns may make a drawn game.

We shall now proceed to give a few general maxims, for the advice of persons but slightly acquainted with the game. To begin the game, the pawns must be moved before the pieces, and afterwards the pieces must be brought out to support them. The king's and queen's pawns should be moved first, that the game may be well opened; the pieces must not be played out early in the game, because the player may thereby lose his moves. It is preferable to move the pawns, in general, as far as the centre at the first move, as it allows more room for the advance of the heavier pieces. The queen should never stand in such a manner before the king, that the adversary, by bringing a rook or bishop, could check the king if she were not there; as it might occasion the loss of the queen. The adversary's knight should never be suffered to check the king and queen, or king and rook, or queen and rook, or the two rooks at the same time; especially if the knight is properly guarded; because, in the two first cases, the king being forced to go out of check, the queen or the rook must be lost; and, in the two last cases, a rook must be lost at least for a worse piece. The player should take care that no guarded pawn of the adversary's fork two of his pieces. As soon as the kings have castled on different sides of the board, the pawns on that side of the board should be advanced upon the adversary's king, and the pieces, especially the queen and rook, should be brought to support them; and the three pawns belonging to the king that is castled must not be moved. The more moves a player can have in ambuscade, the better; that is to say, the queen, bishop, or rook, is to be placed behind a pawn or a piece in such a position, that, upon playing that pawn or piece a check is discovered upon the adversary's king, by which means a piece of some advantage is often gained. An inferior piece should never be guarded with a superior, when a pawn would answer the same purpose; for this reason, the superior piece may remain out of play; neither should a pawn be guarded with a piece, when a pawn would do as well. A well supported pawn that is passed often costs the adversary a piece; and when a pawn or any other advantage is gained, without endangering the loss of the move, the player should make as frequent exchanges of pieces as he can. The advantage of a passed pawn is this: if the player and his adversary have each three pawns on the board, and no pieces, and the player has one of his pawns on one side of the board, and the other two on the other side, and the adversary's three pawns are opposite to the player's two pawns, he should march with his king as soon as he can, and take the adversary's pawns; if the adversary goes with his king to support them, the player should go on to queen with his single pawn; and then, if the adversary goes to hinder him, he should take the adversary's pawns, and move the others to queen. When the game is near finished, each party having only three or four pawns on each side of the board, the kings must endeavour to gain the move in order to win the game. For instance, when the player brings his king opposite to the adversary's with only one square between, he will gain the move. If the player has greatly the disadvantage of the game, having only his queen left in play, and his king happens to be in a position to win, as above mentioned, he should keep giving check to the adversary's king, always taking care not to check him where he can interpose any of his pieces that make the stale; by so doing he will at once force the adversary to take his queen, and then he will win the game by being in a stale-mate. We shall now notice the Hindu, Chinese, and Persian varieties of this interesting game. Of these we treat first of the Hindu, as it has apparently the best claims to originality.

The HINDU GAME varies principally from ours in having four distinct armies and kings, each army composed of half the number of men usually employed, and the boat or car which occupies the place of our castle has the power of a bishop limited to two chequers, and the pawn takes the rank of that piece, and no other, into whose square he moves in the rear line of the enemy. To determine the moves dice are made use of; when a cinque is thrown the king or a pawn must be moved, if a quatre the elephant (our queen), if a trois the knight, and if a deuce the boat. The king, elephant, and knight, slay but cannot be slain.

The CHINESE GAME varies principally from the others, in that there is a river running through the centre of the board, which the elephants (bishops) never cross, and there is a fort, beyond the limits of which the king never moves. There are also two pieces called pao or rocket-boys. The pao can move the whole range of the sections direct, transverse, or retrograde, like the English castle, and if any of the adversary's pieces or pawns intervene in the direct line, he takes the one immediately in the rear of it. Except that the king is supported by two sons instead of a queen, the game is in other respects like ours.

The PERSIAN GAME is but a slight variation in principle from the European, the principal difference being in the move of the ferz (our queen), which, on the opening of the game, advances one step direct in front, his pawn moving with him at the same time, in order, it is said, to review and regulate the motions of the army; afterward he can only move diagonally, one step at a time, in advance or retreat.

There are several minor variations in different countries, as for instance the queen has in Russia the move of the knight, but too trifling and arbitrary to deserve much attention. The principal English writer on Chess is Philidor, 1749 and 1822. Sarratt has also published a valuable work on this game.

We conclude with the Morals of Chess by the celebrated Dr. Franklin, whose knowledge of this game introduced him to many of his most distinguished political friends. 'The game of chess is not merely an idle amusement. Several very valuable qualities of the mind, useful in the course of human life, are to be acquired or strengthened by it, so as to become habits, ready on all occasions. For life is a kind of chess, in which we have often points to gain, and competitors or adversaries to contend with, and in which there is a vast variety of good and evil events, that are, in some degree, the effects of prudence or the want of it. By playing at chess then, we may learn,

1. 'Foresight, which looks a little into futurity, and considers the consequences that may attend an action: for it is continually occurring to the player, 'If I move this piece, what will be the advantage of my new situation? What use can my adversary make of it to annoy me? What other moves can I make to support it, and to defend myself from his attacks?'

2. 'Circumspection, which surveys the whole chess-board, or scene of action; the relations of the several pieces and situations, the dangers they are respectively exposed to, the several possibilities of their aiding each other, the probabilities that the adversary may take this or that move, and attack this or the other piece, and what different means can be used to avoid his stroke, or turn its consequences against him.

3. 'Caution, not to make our moves too hastily. This habit is best acquired by observing strictly the laws of the game; such as 'If you touch a piece, you must move it somewhere; if you set it down, you must let it stand:' and it is therefore best that these rules should be observed, as the game thereby becomes more the image of human life, and particularly of war; in which, if you have incautiously put yourself into a bad and dangerous position, you cannot obtain your enemy's leave to withdraw your troops, and place them more securely, but you must abide all the consequences of your rashness.

CHEST, *n. s.* Κιστη; Lat. *cista*; Goth. *kist*; Per. *kisti*; Sax. cyst. A case, to contain any thing; a box; a coffer; the cavity of the breast. Chests, of whatever description, derive their name from their capacity of containing.

He will seek there on my word: neither press, *chest*, trunk, well, vault, but he hath an abstract for the remembrance of such places. *Shakspeare.*

Such as have round faces, or broad *chests*, or shoulders, have seldom or never long necks. *Browne.*

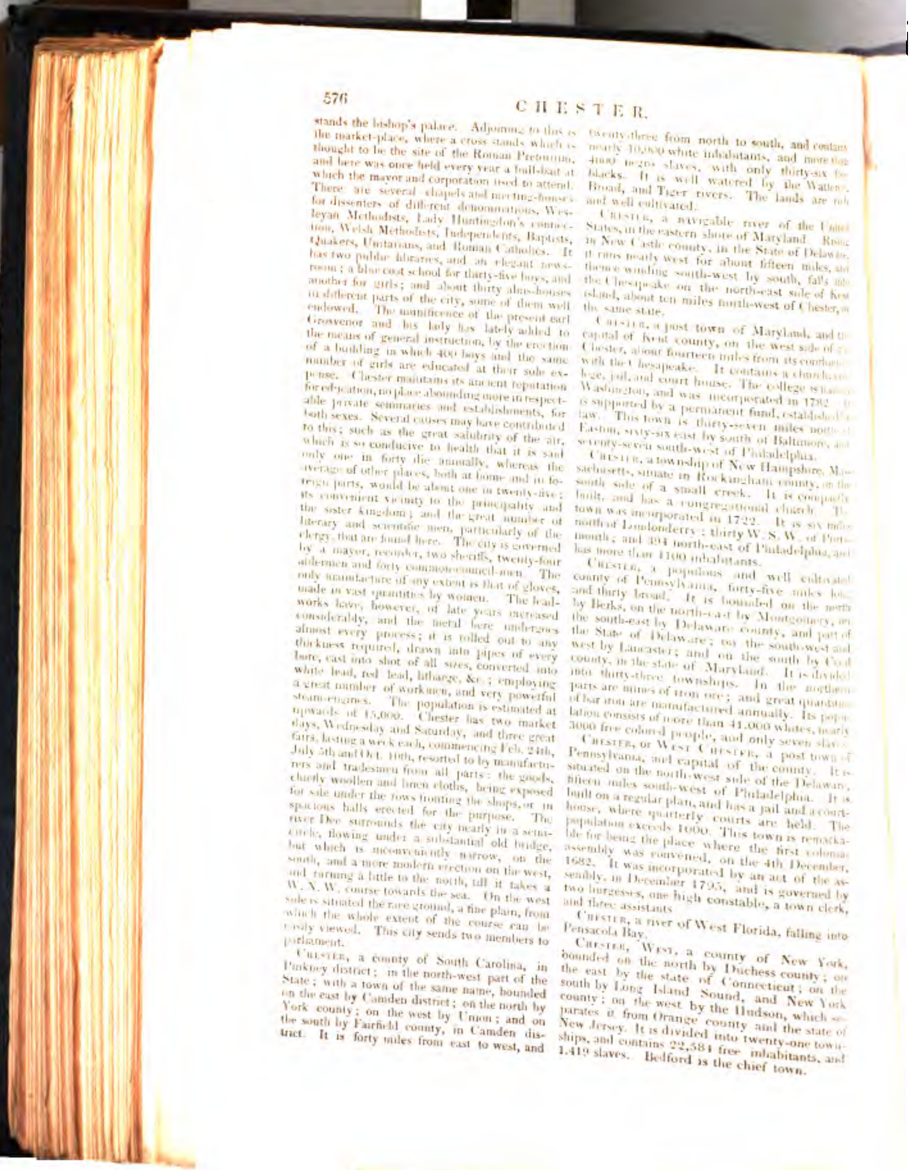
But more have been by avarice opprest,
And heaps of money crowded in the *chest* *Dryden.*

He describes another by the largeness of his *chest*, and breadth of his shoulders.

Pope's Notes on the Iliad.

CHEST, or THORAX. See ANATOMY.

CHESTER, sometimes called West Chester, a city in England, the capital of the county of Cheshire, is situated on the western side, not far from the borders of Flintshire, and south of the peninsula formed by the estuaries of the Dee and the Mersey. It is 183 miles from London, and eighteen from the sea. Long. 3° 3' W., lat. 53° 16' N. It is a very ancient city, some antiquaries asserting that it was founded by Magus, the grandson of Japhet, 240 years after the flood, and from him was known by the name Niomagus! It was afterwards called Caer-leon, and by the Romans Cestria, from a camp they had fixed there, and this very probably originated its present name. Some very stately remains, found in the vaults and cellars under this city, also serve to show the greatness of the Roman power here. Its form is square, with four principal streets, running towards the four cardinal points, called Eastgate, Northgate, Watergate, and Bridge streets, and a number of smaller ones forming right angles with them. Its walls are entire and surround it on all sides, rising in beautiful arches over the great streets and affording a delightful promenade for the inhabitants, with a most commanding prospect of the adjacent country. It has been the see of a bishop since the end of the seventh century, and belongs to the province of York; it contains a cathedral, and seven parish churches within the walls, and one beyond them. Anciently it was a part of the bishopric of Litchfield; but on the destruction of the monasteries, in the reign of Henry VIII. it was made a distinct bishopric, and endowed with the revenues of the abbey of Benedictines. Its churches, particularly St. Mary's, contain many ancient monuments. In the days of king Arthur it was a celebrated school for philosophy and the learned languages; several British and Saxon kings were crowned here, and it is said that Henry IV. emperor of Germany, who married Maude the grandaughter to William the Conqueror, lived as a hermit at Chester, unknown; but discovered himself near his death, and was buried here. The principal streets appear to have been excavated, as Mr Pennant says, out of the earth, and sunk several feet below the surface; rows of shops run along the sides of them in the central and higher parts of the city; the houses have galleries or piazzas before them and frequently under the upper stories, at the backs of which the principal shops are ranged, and under these covered ways the inhabitants may walk almost over the town, sheltered both from the sun and the rain. The old Castle has been taken down and a new city gaol erected, with a fine entrance, on the model of the Acropolis at Athens, introducing to a noble and extensive area, on one side of which is a barrack for 120 men, on the other an arsenal with 27,000 stand of arms, and in the front the shire-hall, the portico of which is supported by twelve pillars, each twenty-two feet high and thirty-seven inches in diameter. The hall itself forms a semicircle forty-four feet high, eighty feet in diameter, and fifty feet wide; the roof being supported by twelve pillars of the Ionic order. In the construction of the prison great attention has been paid to the health and classification of the prisoners. It is a royal fortress The abbey court forms a pleasant square, on one side of which



stands the bishop's palace. Adjoining to this is the market-place, where a cross stands which is thought to be the site of the Roman Pretorium, and here was once held every year a bull-bait at which the mayor and corporation used to attend. There are several chapels and meeting-houses for dissenters of different denominations, Wesleyan Methodists, Lady Huntingdon's connection, Welsh Methodists, Independents, Baptists, Quakers, Unitarians, and Roman Catholics. It has two public libraries, and an elegant news-room; a blue-coat school for thirty-five boys, and another for girls; and about thirty alms-houses in different parts of the city, some of them well endowed. The munificence of the present earl Grosvenor and his lady has lately added to the means of general instruction, by the erection of a building in which 400 boys and the same number of girls are educated at their sole expense. Chester maintains its ancient reputation for education, no place abounding more in respectable private seminaries and establishments, for both sexes. Several causes may have contributed to this; such as the great salubrity of the air, which is so conducive to health that it is said only one in forty die annually, whereas the average of other places, both at home and in foreign parts, would be about one in twenty-five; its convenient vicinity to the principality and the sister kingdom; and the great number of literary and scientific men, particularly of the clergy, that are found here. The city is governed by a mayor, recorder, two sheriffs, twenty-four aldermen and forty common-council-men. The only manufacture of any extent is that of gloves, made in vast quantities by women. The lead-works have, however, of late years increased considerably, and the metal here undergoes almost every process; it is rolled out to any thickness required, drawn into pipes of every bore, cast into shot of all sizes, converted into white lead, red lead, litharge, &c.; employing a great number of workmen, and very powerful steam-engines. The population is estimated at upwards of 15,000. Chester has two market days, Wednesday and Saturday, and three great fairs, lasting a week each, commencing Feb. 24th, July 5th and Oct. 10th, resorted to by manufacturers and tradesmen from all parts: the goods, chiefly woollen and linen cloths, being exposed for sale under the rows fronting the shops, or in spacious halls erected for the purpose. The river Dee surrounds the city nearly in a semicircle, flowing under a substantial old bridge, but which is inconveniently narrow, on the south, and a more modern erection on the west, and turning a little to the north, till it takes a W. N. W. course towards the sea. On the west side is situated the race ground, a fine plain, from which the whole extent of the course can be easily viewed. This city sends two members to parliament.

CHESTER, a county of South Carolina, in Pinkney district; in the north-west part of the State; with a town of the same name, bounded on the east by Camden district; on the north by York county; on the west by Union; and on the south by Fairfield county, in Camden district. It is forty miles from east to west, and twenty-three from north to south, and contains nearly 10,000 white inhabitants, and more than 4000 negro slaves, with only thirty-six free blacks. It is well watered by the Wateree, Broad, and Tiger rivers. The lands are rich and well cultivated.

CHESTER, a navigable river of the United States, in the eastern shore of Maryland. Rising in New Castle county, in the State of Delaware, it runs nearly west for about fifteen miles, and thence winding south-west by south, falls into the Chesapeake on the north-east side of Kent island, about ten miles north-west of Chester, in the same state.

CHESTER, a post town of Maryland, and the capital of Kent county, on the west side of [illegible] Chester, about fourteen miles from its confluence with the Chesapeake. It contains a church, a college, jail, and court house. The college is named Washington, and was incorporated in 1782. It is supported by a permanent fund, established by law. This town is thirty-seven miles north of Easton, sixty-six east by south of Baltimore, and seventy-seven south-west of Philadelphia.

CHESTER, a township of New Hampshire, Massachusetts, situate in Rockingham county, on the south side of a small creek. It is compactly built, and has a congregational church. The town was incorporated in 1722. It is six miles north of Londonderry; thirty W. S. W. of Portsmouth; and 394 north-east of Philadelphia, and has more than 1100 inhabitants.

CHESTER, a populous and well cultivated county of Pennsylvania, forty-five miles long and thirty broad. It is bounded on the north by Berks, on the north-east by Montgomery, on the south-east by Delaware county, and part of the State of Delaware; on the south-west and west by Lancaster; and on the south by Cecil county, in the state of Maryland. It is divided into thirty-three townships. In the northern parts are mines of iron ore; and great quantities of bar iron are manufactured annually. Its population consists of more than 41,000 whites, nearly 3000 free colored people, and only seven slaves.

CHESTER, or WEST CHESTER, a post town of Pennsylvania, and capital of the county. It is situated on the north-west side of the Delaware, fifteen miles south-west of Philadelphia. It is built on a regular plan, and has a jail and a court-house, where quarterly courts are held. The population exceeds 1000. This town is remarkable for being the place where the first colonial assembly was convened, on the 4th December, 1682. It was incorporated by an act of the assembly, in December 1795, and is governed by two burgesses, one high constable, a town clerk, and three assistants.

CHESTER, a river of West Florida, falling into Pensacola Bay.

CHESTER, WEST, a county of New York, bounded on the north by Duchess county; on the east by the state of Connecticut; on the south by Long Island Sound, and New York county; on the west by the Hudson, which separates it from Orange county and the state of New Jersey. It is divided into twenty-one townships, and contains 22,584 free inhabitants, and 1,419 slaves. Bedford is the chief town.

CHESTER. See CASTOR.

CHESTER-LE-STREET, or CHESTER IN THE STREET, the Cuneacestre of the Saxons, a small thoroughfare town between Newcastle and Durham, with a good church and fine spire. In the time of the Saxons, this place was greatly respected on account of the relics of St. Cuthbert, deposited in it, by bishop Eardulf, for fear of the Danes, who then, about A. D. 884, ravaged the country. His shrine became afterwards an object of great devotion. Along with the remains of St. Cuthbert, the bishopric of Lindesfarn was removed here, and endowed with all the lands between the Tyne and the Were, comprehending the present county of Durham. The inhabitants had great privileges, and were free from military duty, except that of defending the body of their saint. Chester may be considered as the parent of the see of Durham; for when the saint's relics were removed thither, in 995, the see followed them. Bishop Beke, in 1286, in honor of that saint, made the church collegiate; established a dean and suitable ecclesiastics; and, among other privileges, gave the dean a right of fishing on the Were, with the tythes of fish. This town is five miles north of Durham.

CHESTERFIELD, a district of South Carolina, United States, not far from North Carolina, in the district of Cheraws. It comprehends an area of about 850 square miles, and contains a population of nearly 4500 whites, more than 2000 slaves, and about 170 free blacks.

CHESTERFIELD, a populous county of Virginia, United States, not quite so large as the former. It is bounded on the north by James River, and on the south by the river Appomattox; and contains a population exceeding 18,000, of whom nearly half are slaves.

CHESTERFIELD, a market town of England, in Derbyshire, the second in the county, pleasantly situated on a hill between the Iber and the Rother. It was made a free borough by king John; and in 1294 first had the privilege of a guild of merchants. It is governed by a mayor, six aldermen, six brethren, and twelve burgesses, and it gives the title of earl to the family of Stanhope. It is very populous, and has a considerable market for corn, and other commodities; with stocking and carpet manufactories; a silk and cotton mill, and several potteries, and large iron foundries. The neighbourhood produces great plenty of coal and iron; and vast quantities of lead are sent hence by a canal, which joins the Trent below Gainsborough. The church is a handsome structure, in the form of a cross, but the spire is remarkably bent. There is a free-school, founded by queen Elizabeth. In the market-place is a neat town-hall; there is also a work-house and a house of correction. Market on Saturday. It is twenty-two miles north of Derby, and 150 N. N. W. of London.

CHE'STNUT, } Lat. *castanea*; Fr. *chas-*
CHE'STNUT-TREE. } *taigne*; in botany. See FAGUS.

Medlers, plommes, peres, *chesteines*. *Chaucer.*

A woman's tongue,
That gives not half so great a blow to the ear
As will a *chestnut* in a farmer's fire. *Shakspeare.*

So when two boars in wild Ytene bred,
Or on Westphalia's fattening *chestnuts* fed,
Gnash their sharp tusks, and, roused with equal fire,
Dispute the reign of some luxurious mire,
In the black flood they wallow o'er and o'er,
Till their armed jaws distil with foam and gore. *Gay.*

The name of a brown color.

His hair is of a good colour.——
——An excellent colour: your *chestnut* was ever the only colour. *Shakspeare.*

Merab's long hair was glossy *chestnut* brown. *Cowley.*

CHESTNUT, HORSE. See ÆSCULUS.

CHESTNUT, INDIAN ROSE. See MESUA.

CHE'STON, *n. s.* A species of plum.

CHETA, a river in the north of Siberia, or Asiatic Russia, rising in 70° 30′ lat. and 106° E. long. It falls into the Anabora, or Charanga, near its mouth. Also a river of Asiatic Russia, running into the Enisci near Avanska, in the lat. 68° 40′ N., long. 89° E.

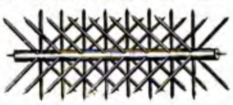
CHEVALER, in the menage, is said of a horse, when, in passaging upon a walk or trot, his off fore-leg crosses or overlaps the near fore-leg every second motion.

CHEVALI'ER, *n. s.* Fr. *chevalier*. A knight; a gallant strong man.

Renowned Talbot doth expect my aid;
And I am lowted by a traitor villain,
And cannot help the noble *chevalier*. *Shakspeare.*

CHEVALIER, in heraldry, signifies any cavalier, or horseman armed at all points; now out of use, and only to be seen in coat armour.

CHEVAUX DE FRISE, in fortification, is a machine composed of a piece of timber, larger or smaller, pierced and traversed with wooden spikes, pointed with iron, five or six feet long, as in the annexed diagram, used for defending a passage, stopping a breach, or making a retrenchment to stop the cavalry. These machines are sometimes mounted on wheels, with artificial fires, to roll down in an assault. The prince of Orange used to enclose his camp with chevaux de frise, placing them one over another.



CHE'VEN, *n. s.* Fr. *chevesne*. A river fish, the same with chub.

CHE'VERIL, *n. s.* Fr. *cheverau*. A kid; kidleather. Obsolete.

A sentence is but a *cheveril* glove to a good wit: how quickly the wrong side may be turned outward. *Shakspeare.*

What gifts the capacity
Of your soft *cheveril* conscience would receive,
If you might please to stretch it. *Id.*

CHEVIOT, or TIVIOT HILLS, a ridge of mountains, which runs from north to south through Northumberland and Cumberland, near which was a free chase, called Cheviot, corruptly chevy-chase; the seat of the encounter between the Percies and the Douglasses, celebrated in tne ballad of Chevy-chase. It lay six miles from the borders of Scotland, and eighteen south of Berwick. These hills are the first land discovered in coming from the east into Scotland. One of them is so high, that it is seen sixty miles off. They are famous for feeding an excellent breed of sheep, called from them the Cheviot breed.

CHEVISANCE, *n. s.* Fr. *chevisance*. Enterprise; achievement. A word now not in use.

> Ye should have warned me, or I had gon,
> That he you had an hundred frankes paide
> By redy token. And held him evil apaide
> For that I to him spake of *chevisance*. *Chaucer.*
>
> Fortune, the foe of famous *chevisance*,
> Seldom, said Guyon, yields to virtue aid. *Spenser.*

Chevisance, in law, denotes an agreement or composition, as an end or order set down between a creditor and his debtor, &c. In the statutes, this word is most commonly used for an unlawful bargain or contract.

CHEVREAU (Urban), a learned writer, born at Loudun in 1613. He distinguished himself in his youth by his knowledge of the belles lettres; and became secretary of state to queen Christina of Sweden. Several German princes invited him to their courts; and Charles-Lewis, the elector palatine, retained him under the title of counsellor. After the death of that prince, he returned to France, and became preceptor to the duke of Maine. He died at Loudun, in 1701, aged eighty-eight. He published several works, particularly an Universal History, which has often been reprinted.

CHEVRETTE, an engine useful for the purpose of raising guns or mortars into their carriages. It is made of two pieces of wood about four feet long, standing upright upon a third, which is square; they are about a foot asunder, and parallel; pierced with holes opposite one another, to hold a strong bolt of iron, which may be raised or lowered at pleasure; it may be used with a common handspike, which takes its poise over the bolt, and thus raises the weight.

CHEVRON, *n. s.* French. One of the honorable ordinaries in heraldry. It represents two rafters of a house, set up as they ought to stand.—*Harris.*

CHEVRONNE, or Chevronny, in heraldry, the parting of a shield several times.

CHEVROTTER, Fr. *chevre*, a goat; a metaphorical expression, used when a singer, in lieu of neatly shaking alternately the two notes which form the cadence, or shake, repeats only one note with precipitation, as detached semiquavers.

CHEW, *v. a.* & *v. n.* Teut. *kieuwen*, *kiefen*; Sax. ceowan; Fr. *chiquer*; Dutch *kauwen*. It is very frequently pronounced chaw, and perhaps properly. To grind with the teeth; to masticate; to champ upon; to receive into the mouth and retain there for some time, for mastication alone and not for nourishment. Metaphorically to meditate; to ruminate in the thoughts.

> If little faults, proceeding on distemper,
> Shall not be winked at, how shall we stretch our eye,
> When capital crimes, *chewed*, swallowed, and digested,
> Appear before us? *Shakspeare.*
>
> Pacing through the forest,
> *Chewing* the cud of sweet and bitter fancy. *Id.*
>
> Heaven's in my mouth,
> As if I did but only *chew* its name. *Id.*
>
> I will with patience hear, and find a time;
> Till then, my noble friend, *chew* upon this. *Id.*
>
> Some books are to be tasted, others to be swallowed, and some few to be *chewed* and digested; that is, some books are to be read only in parts; others to be read, but not curiously; and some few to be read wholly, with attention. *Bacon.*
>
> While the fierce monk does at his trial stand,
> He *chews* revenge, abjuring his offence:
> Guile in his tongue, and murder in his hand,
> He stabs his judge, to prove his innocence. *Prior.*

Chewing Balls, a kind of *balls* made of asafetida, liver of antimony, bay-wood, juniper wood, and pellitory of Spain; which being dried in the sun, and wrapped in a linen cloth, are tied to the bit of the bridle for the horse to chew. They create an appetite; and it is said that balls of Venice treacle may be used in the same manner with success.

CHEYNE (Dr. George), a physician of great learning and abilities, born in the parish of Methlick in Aberdeenshire, in 1671, and educated at Edinburgh under Dr. Pitcairn. He passed his youth in close study and great temperance, but frequenting gay company for the sake of practice in London, when about thirty, the consequence was, that he grew daily in bulk, became excessively corpulent, lethargic, and scorbutic; so that his life was an intolerable burden. In this deplorable condition, after having in vain tried all the power of medicine, he resolved to adopt a milk and vegetable diet, the good effects of which quickly appeared. His size was reduced almost a third; and he recovered his strength, activity, and cheerfulness. In short, by a regular adherence to this regimen, he lived to a mature period, dying at Bath in 1742, aged seventy-two. He wrote several treatises that were well received; particularly, An Essay on *Health and Long Life*; and The English Malady, or a Treatise of Nervous Diseases.

CHIABRERA (Gabriel), esteemed the Pindar of Italy, was born at Savona in 1552, and went to study at Rome. The Italian princes, and Urban VIII. gave him public marks of their esteem. He wrote a great number of poems; but his lyric verses are most admired. He died at Savona in 1638, aged thirty-six.

CHIAN Earth, in pharmacy, one of the medicinal earths of the ancients, the name of which is preserved in the catalogues of the Materia Medica, but of which little more than the name has been known for many ages in the shops.

CHIOSH, in the original Turkish, envoys, are officers to the number of 500 or 600 in the grand seignior's court, under the command of a chiosh baschi. They frequently meet in the grand vizier's palace, that they may be in readiness to execute his orders, and carry his despatches into all the provinces of the empire.

CHIAPA, a province of Mexico, North America, in the audience of Guatimala; bounded on the north by the province of Tabasco; on the east by Vera Paz; on the south by Guatimala; on the south-west by Sonusco; and on the west

ring through the forest,
cud of sweet and bitter fancy.
a's in my mouth,
I did but only chew its name.
patience hear, and find a true;
noble friend, chew upon this
are to be tasted, others to be
o be chewed and digested, that is
read only in parts; others are
ly; and some few to be read
h

ree monk does at his trial
re, abjuring his offence:
ongue, and murder in his
ge, to prove his innocence. h
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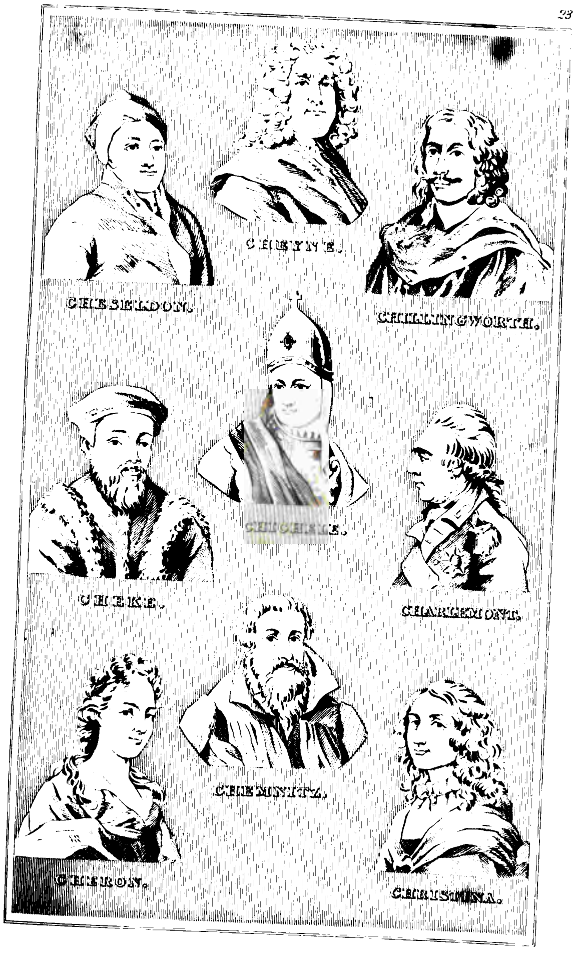


by Guaxaca. It is seventy leagues long, and sixty-five broad. Its principal productions are grain and fruits, with excellent pastures, on which they feed a great number of cattle. Its horses also are valuable.

Chiapa dos Espagnoles, or **Cividad Real**, the capital of the above province, is the see of a bishop. It contains one parish church and three convents. Its principal commerce is in cocoa, cotton, and cochineal. It is 380 miles south-east of Mexico.

Chiapa, or **Chiapa dos Indios**, a town of North America, in the province of Chiapa, containing about 4000 families, chiefly Indians, who are rich. During the day the heat here is violent, while the nights are cool. The inhabitants raise a great deal of sugar. It is 350 miles south-east of Mexico, and thirty west of Chiapa dos Espagnoles.

CHIARENZA, or **Clarenza**, a territory in the north-west coast of the Morea, subject to the Turks, anciently called Achaia.

Chiarenza, the capital of the above territory, and a sea-port in the Mediterranean, opposite to the island of Zante, has a good harbour, and is twenty-six miles south of Patras.

CHIARI, a town of Italy, in the ci-devant province of Bresciano; between Brescia and Crema, where the Imperialists obtained a victory over the French in 1701. It is seven miles west of Brescia, and twenty-seven east of Milan.

Chiari (Joseph), a celebrated Italian painter, was the disciple of Carlo Maratti; and adorned the churches and palaces of Rome with a great number of fine paintings. He died of an apoplexy in 1727, aged seventy-three.

CHIAROSCURO. Ital. In painting. The art of judiciously distributing the lights and shadows in a picture. A knowledge of it comprises the proper gradation of lights and shades on bodies, placed on certain planes, and in certain positive lights; but chiaroscuro being a science comprehending not only the mechanical action of light, shade, and reflexes, but of aërial perspective, the proportional force of colors, or of those qualities by which they apparently advance to, or recede from, the eye, and of their various degrees of transparency or opacity, depends entirely on the painter's imagination, who should, if master of this branch of art, dispose his objects to receive such lights and shades as he proposes for his picture, and introduce such accidental circumstances of light, shade, vivid or opaque colors, as he reckons most advantageous to the whole. Chiaro not only signifies the lights of a picture, but also those colors which, even in shade, are luminous; and oscuro not only the shades, but also the dusky colors, either in light or shadow. The best treatises on the subject are to be found in the works of Sir Joshua Reynolds, the lectures of Fuseli and Opie, delivered in the Royal Academy of London, and several of the works referred to in the article painting. See Painting.

CHIAVENNA, a county of .Switzerland, which was under the government of the Grisons, till 1797, when it was formally united to the Cisalpine (afterwards the Italian) republic, in consequence of the decision of Buonaparte, as arbiter between the people of these territories and the Grisons. It now belongs to Austria. It is situated at the foot of the Rhetian Alps, to the north of the lake of Como; is about eight leagues long and six broad. The country is for the most part fertile in wine and pastures, and the inhabitants pay considerable attention to the production of silk. Of this commodity, it is estimated that the country yields 3600 lbs. annually; and, though there is generally a deficiency of corn for the wants of the inhabitants, they are supplied by their neighbours for cattle, wine, and silk. Also a lake in the above county, near the town.

Chiavenna, the chief town of the above county, is situated at the foot of a mountain, and contains about 3000 souls. Its chief support is the transport of merchandise, being the principal communication between the Milanese and Germany. From this town the goods are sent either by Coire into Germany, or through Pregalia and the Engadine into the Tyrol. Besides which, it is a place of very little trade; the chief articles of exportation are stone pots, called lavezzi, and raw silk. The only manufacture carried on in the town is that of silk stockings. The neighbouring country is covered with vineyards; but the wine is a meagre sort, and only a small quantity is exported. On the summit of a rock, which overlooks the town, stands the ruins of a fortress, celebrated in the history of the Grisons for its almost impregnable strength. Chiavenna is thirty-eight miles north of Como, and thirty-five south of Coire.

CHIAUSI, among the Turks, officers employed in executing the viziers, bashaws, and other great men: the order for doing this, the grand seignior sends them wrapped up in a black cloth, on the reception of which, they immediately perform their office.

CHICA Nayakana Hully, a large decayed town of the Mysore, Hindostan, famous for its manufacture of white and colored coarse cotton cloth. A weekly fair is held for the sale of it and other commodities. The town was fortified about 300 years ago.

CHICA'NE, *n. s.* & *v. n.*
Chica'ner, *n. s.*
Chica'nery, *n. s.*
} Fr. *chicane*; from Δικανὸς; Lat. *dica*; legal disputation, sophistry; Arabic *dig*; Span. and Port. *chico*; Fr. *chic*. A trifling petty quibble. Petty trickery. The act of petty fogging. Perverting the law to selfish and roguish purposes, and at the expense of justice and the public; an attorney's besetting sin.

> Unwilling then in arms to meet,
> He strove to lengthen the campaign,
> And save his forces by *chicane*. *Prior.*

> The general part of the civil law concerns not the *chicane* of private cases, but the affairs and intercourse of civilized nations, grounded upon the principles of reason. *Locke.*

> This is the way to distinguish the two most different things I know, a logical *chicaner* from a man of reason. *Id.*

> His anger caused him to destroy the greatest part of these reports; and only to preserve such as discovered most of the *chicanery* and futility of the practice. *Arbuthnot.*

CHICANJA, or Chacanga, a kingdom of Africa, which was formerly a part of the country of Monomotapa; it is rich in gold mines, and is sometimes called Manica, from the principal town, which is situated on the river Sofala, in long. 28° 0′ E. Greenwich, lat. 20° 15′ S. The Portuguese long endeavoured to subdue this territory, but were obliged finally to limit themselves to their establishment on the Zambeze, where they still receive the precious metals in exchange for the manufactures of Europe.

CHICACOTTAH, a fortified town on the south frontier of Bootan, frequently taken and relinquished by the British India troops. It is now in our possession. It is ninety-four miles south of Tassassudon.

CHICAS y Tarija, a province of Peru, bounded on the north by Porco, south by Tucuman, and west by Lipes. It is between 400 and 500 miles in circumference, and produces maize, potatoes, and European grain. There are also mines of gold and silver here, which were formerly considered rich. The district of Tarija annexed to this is full of craggy mountains and glens, which are extremely fertile.

CHICHELE (Henry), archbishop of Canterbury, was born in 1362, in Northamptonshire, at Higham Ferrars. He received his education at Winchester, from whence he proceeded to New College, Oxford, and was so celebrated in the civil and canon law, that Henry IV. appointed him his ambassador to the pope, and to the court of France. In 1408 he was consecrated bishop of St. David's, and sent the next year to the council of Pisa. In 1414 he was elected archbishop of Canterbury, in which situation he promoted a contribution to enable Henry V. to carry on the war with France. The archbishop was a decided opponent of Wickliffe, and he as strenuously opposed the papal encroachments. In 1442 he applied to pope Eugenius for leave to resign his see, but died before any answer could be received, April 12th, 1443, and was interred in Canterbury Cathedral under a monument prepared by himself. He founded, in 1422, a collegiate church at Higham Ferrars, to which he attached an hospital. He also improved the cathedral of Canterbury, and Lambeth palace; but his most munificent work was the foundation of All Souls College, Oxford in 1437, of which he completed the statutes but a few days before his death.

CHICHES, *n. s.* See Chickpeas.

CHICHESTER, the capital of the county of Sussex, and a city and county of itself, situated in the west part of the county, on the small river Lavant, which almost encircles it, except on the western side. Long. 0° 47′ W., lat. 50° 50′ N. It consists of four great streets, intersecting one another at right angles, wide, handsome, and well paved. Of the ancient walls only some small portions remain, the largest on the north, and the fortified gateways which formerly terminated the principal streets are destroyed. These walls embraced an area of about 101 acres, enclosing six parishes, but without them are two other parishes, the whole containing a population, according to the latest surveys, of 8360 inhabitants, in the proportion of about fourteen females to eleven males. Its principal buildings consist of the cathedral, an elegant Gothic structure with a spire 300 feet high, the parish churches, an ancient nunnery, now an hospital, endowed with some valuable estates, a beautiful octagonal cross, the guildhall, in an obscure part of the city, the council-chamber, above the market-place, next to which is a subscription assembly-room, the theatre, and bishop's palace, besides several dissenting meeting-houses, and endowed free-schools. Here also is a national-school, allowed to be the most complete in England. The cathedral has a bishop, dean, two archdeacons, a treasurer, a chancellor, thirty-two prebendaries, a chanter twelve vicars choral, &c., and the diocese includes the whole county, except twenty-two parishes. The site of this city was evidently a Roman station, as appears from remains found in 1727, probably the foundations of a temple, and the traces of a camp in the neighborhood. After suffering various dilapidations, it was rebuilt by Cissa, the second king of the south Saxons, from whom it was called Cisa-caester, signifying the city of Cissa. It was subsequently given by William the Conqueror, together with Arundel and the lands adjoining both places, to Hugh de Montgomery. The trade of Chichester is small, its distance from the quay being unfavorable to it, and the river not being navigable to the city. About two hundred years ago it nearly monopolised the trade of needle-making, but this is now at an end, being superseded by cheaper articles, though inferior in quality, from other parts. About the beginning of the sixteenth century it was famous for malt, but this trade has long been on the decline. It has two markets in the week, Wednesday and Saturday, and is well supplied with all kinds of provision; fish is plentiful, particularly oysters, lobsters, and mullets. Near the fish shambles, over a neat conduit of water, stands a fine figure of a Druid. Its cattle market is constantly resorted to by the butchers from Portsmouth, and frequently by those from London. This city sends two members to parliament, the right of election being vested in those that pay scot and lot, and the mayor is the returning officer. It is governed by the mayor, recorder, aldermen, and common council; and four justices of the peace are chosen from the aldermen. It now possesses a literary and scientific institution.

CHI'CHLING Vetch, *n. s.* Lat. *lathyrus.* In Germany they are cultivated and eaten as peas, though neither so tender nor well tasted.—*Miller.*

CHICK, *n. s.* } Sax. cicen; Dutch *kiecken.*
Chi'cken, *n. s.* } Chicken is, I believe, the old plural of chick, though now used as a singular noun. The young of a bird, particularly of a hen, or small bird.

Her here was as yelowe of hewe
As any basin scoured newe;
Her flesh tender as is a *chike*,
With bent browes both smothe and slike.
Chaucer

At last him turning to his charge behight,
With trembling hand his troubled pulse gan try;
Where finding life not yet dislodged quight

He much reioyst, and courd it tenderly,
As *chicken* newly hatcht, from dreaded destiny.
Spenser.

All my pretty ones!
What, all my pretty *chickens*, and their dam,
At one fell swoop! *Shakspeare.*

On rainy days alone I dine,
Upon a *chick* and pint of wine:
On rainy days I dine alone,
And pick my *chicken* to the bone. *Swift.*

Till you grow tender as a *chick*
I'm dull as any post;
Let us like burs together stick,
And warm as any toast. *Gay.*

A word of tenderness.

My Ariel, *chick*,
This is thy charge. *Shakspeare.*

A term for a young girl.

Then, Chloe, still go on to prate
Of thirty-six and thirty-eight;
Pursue your trade of scandal-picking,
Your hints, that Stella is no *chicken*. *Swift.*

CHICKASAWS, a nation of American Indians, who inhabit the country east of the Mississippi, in the north-west corner of Georgia. Their country is bounded on the west by the Mississippi, on the east by the river Tombeckbee, on the north by Kentucky, and on the south by the Chacktaw Indians. The soil is rich, and well cultivated.

CHI'CKENHEARTED, *adj.* From chicken and heart. Cowardly; timorous; fearful.

Now we set up for tilting in the pit,
Where 'tis agreed by bullies, *chickenhearted*,
To fright the ladies first, and then be parted.
Prologue to Spanish Fryar.

CHI'CKENPOX, *n. s.* An exanthematous distemper, so called, from its being of no very great danger.

CHI'CKLING, *n. s.* From chick. A small chicken.

CHI'CKPEAS, *n. s.* From chick and pea. A kind of degenerate pea.—*Miller.*

CHI'CKWEED, *n. s.* From chick and weed. The name of a plant.

Green mint, or *chickweed*, are of good use in all the hard swellings of the breast, occasioned by milk.
Wiseman.

CHICUITOS, or CUYO. See CUYO.

CHIDE, *v. a.* & *n.* } Preter. chid or chode,
CHI'DER, *n. s.* } part. chid or chidden. Sax. cıðan; Goth. *kuida.* To reprove, blame, scold; applied to persons and things.

If one be ful of wantonesse,
Another is a *chiderese.*
Chaucer's Romaunt of the Rose.

And fly like *chidden* Mercury from Jove.
Shakspeare.

Those, that do teach your babes,
Do it with gentle means, and easy tasks;
He might have *chid* me so: for, in good faith,
I am a child to *chiding*. *Id.*

The business of the state does him offence,
And he does *chide* with you. *Id.*

My duty
As doth a rock against the *chiding* flood,
Should the approach of this wild river break,
And stand unshaken yours. *Id.*

Not her that *chides* Sir, at any hand, I pray.—
I love no *chiders*, Sir. *Id.*

Scylla wept
And *chid* her barking waves into attention.
Milton.

Winds murmured through the leaves your long delay,
And fountains, o'er the pebbles, *chid* your stay.
Dryden.

I *chid* the folly of my thoughtless haste;
For, the work perfected, the joy was past. *Prior.*

You look, as if yon stern philosopher
Had just now *chid* you. *Addison.*

If any woman of better fashion in the parish happened to be absent from church, they were sure of a visit from him, to *chide* and to dine with her. *Swift.*

The priest, who female frailties pityed,
First *chid* her, then her sins remitted. *Gay.*

CHIEF, *n. s.* & *adj.* }
CHI'EFLESS, *adj.* }
CHI'EFLY, *adj.* }
Fr. *chef;* Ital. *capo*, from Lat. *caput*, the head. It is applied to persons, to qualities, to things; to that which is principal in value, station, or importance; to that which is first in order of time. As chiefdom it was formerly applied to sovereignty. It is a civil, a military, a technical, and a general term; always marking out and distinguishing what is pre-eminent. It is likewise always used relatively. The adjective is a superlative in itself, yet sometimes it has 'most' before it, as in the liturgy, 'Yet ought we most chiefly so to do,' &c.; and chiefest is occasionally to be met with. Chief is first in time, first in place, and first in kind.

These were the *chief* of the officers that were over Solomon's works. 1 *Kings.*

The hand of the princes and rulers hath been *chief* in this trespass. *Ezra.*

A froward man soweth strife, and a whisperer separateth *chief* friends. *Proverbs.*

Ah, gentle knight! then false Duessa sayd,
Why do ye strive for ladies love so sore,
Whose *chiefe* desire is love and friendly aid
Mongst gentle knights to nourish evermore. *Spenser.*

Zephyrus being in love with Chloris, and coveting her to wife, gave her for a dowry the *chiefdom* and sovereignty of all flowers and green herbs.
Id. Kal. Gloss.

We beseech you, bend you to remain
Here in the cheer and comfort of our eye,
Our *chiefest* courtier, cousin, and our son.
Shakspeare.

He sometimes denied admission to the *chiefest* officers of the army. *Clarendon.*

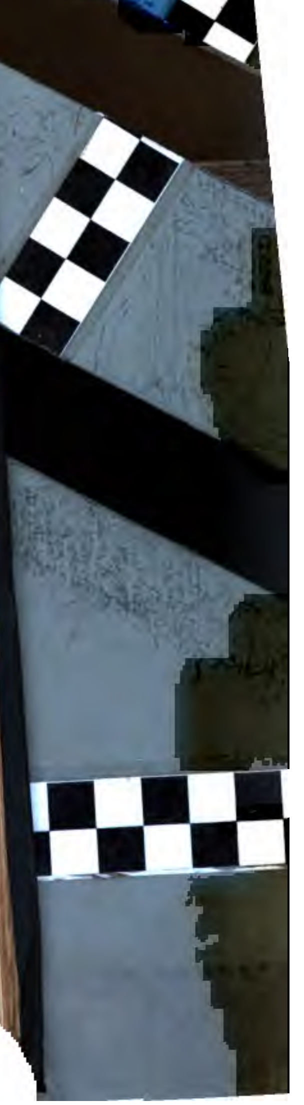
Is pain to them
Less pain, less to be fled? or thou than they
Less hardy to endure? courageous *chief!*
The first in flight from pain.
Milton's Paradise Lost.

A sect whose *chief* devotion lies
In odd perverse antipathies. *Hudibras.*

After or before were never known
Such *chiefs*; as each an army seemed alone.
Dryden.

Any man who will consider the nature of an epic poem, what actions it describes, and what persons they are *chiefly* whom it informs, will find it a work full of difficulty. *Id.*

I came to have a good general view of the apostle's main purpose in writing the epistle, and the *chief* branches of his discourse wherein he prosecuted it.
Locke.



> But all its *chief* delight was still
> On roses thus itself to fill,
> And its pure virgin limbs to fold
> In whitest sheets of lilies cold. *Marvel.*
>
> A wit 's a feather, and a *chief* a rod ;
> An honest man 's the noblest work of God. *Pope.*
>
> And *chiefless* armies dozed out the campaign,
> And navies yawned for orders on the main. *Id.*
> Your country, *chief* in arms, abroad defend ;
> At home, with morals, arts, and laws amend. *Id.*
> If the blind poet gained a long renown
> By singing every Grecian *chief* and town,
> Sure Lownds' his prose, much greater fame requires,
> Which sweetly counts five thousand knights and squires,
> Their seats, their cities, parishes, and shires. *Gay.*
> The grave shall bear the *chiefest* prize away,
> And havoc scarce, for joy, can number their array. *Byron.*

Chief, in heraldry, is that which takes up all the upper part of the escutcheon from side to side, and represents a man's head. In chief, imports something borne in the chief part or top of the escutcheon.

CHI'EFRIE, *n. s.* From chief. A small rent paid to the lord paramount.

> They shall be well able to live upon those lands, to yield her majesty reasonable *chiefrie*, and also give a competent maintenance unto the garrisons. *Spenser's Ireland.*
>
> Would the reserved rent at this day be any more than a small *chiefrie?* *Swift.*

CHI'EFTAIN, *n. s.* From chief. Used by Chaucer in the same sense; but now applied almost exclusively to a military commander or the head of a clan.

> Now it is behovely to tellen which ben dedly sinnes, that is to say *chieftaines* of sinnes, * * * * * * * * * Now ben they cleped *chieftaines*, for as moche as they be *chiefe*, and of hem springen all other sinnes. *Chaucer's Persones Tale.*
>
> That forced their *chieftain*, for his safety's sake,
> (Their *chieftain* Humber named was aright)
> Unto the mighty stream him to betake,
> Where he an end of battle and of life did make. *Faerie Queene.*
>
> It broke, and absolutely subdued all the lords and *chieftains* of the Irishry. *Davies on Ireland.*

CHIELEFA, a strong fortress of Turkey in Europe, in the Morea. It was taken by the Venetians in 1685; the Turks afterwards retook it, with all the Morea. It is twelve miles west of Kolokithia.

CHIEM, or Chiemsee, an extensive lake of Germany, in Bavaria, sometimes called Bayerische Meer, or the sea of Bavaria. It contains several islands, particularly Herrenwerd and Frawenwerd, the former of which is a bishop's see, and is situated twenty-two miles W. S. W. of Saltzburg. It is about thirty miles in circuit.

CHIERI, an ancient fortified town of Italy, in Piedmont, seated on the declivity of a hill, in a pleasant country, bounded on all sides by hills covered with vines. It has manufactures of cloth and silk; and is surrounded by an ancient wall, defended by towers, with a fosse; and had formerly a fortress named Rochetta, which was demolished in the sixteenth century. It has six gates and four grand squares or palaces, many churches and religious houses, though only two parishes within the walls, and one without. Near it the French defeated the Spaniards in 1639. It is eight miles east of Turin.

CHIETI, a large town of Naples, the capital of Abruzzo Citerior, with an archbishop's see. It is seated on a mountain, near the river Pescara, eight miles south-west of the town of Pescara, and contains 12,000 inhabitants.

CHIE'VANCE, *n. s.* Probably from Fr. *achevance*, purchase. Traffick, in which money is extorted; as discount. Now obsolete.

> There were good laws against usury, the bastard use of money; and against unlawful *chievances* and exchanges, which is bastard usury. *Bacon.*

CHIGI (Fabius, pope). See Alexander VIII.

CHIHUAHUA, an important town of Mexico, in the intendancy of Durango, situated on the east side of a small stream, which discharges itself into the Conchos. It is environed by silver mines. The public square contains the royal treasury, the church, and the town-house: the principal church is a noble building. A mile south of the town is an aqueduct, which conveys the water round into the main stream below the town east, at the entrance of which is a reservoir, whence it is conducted by pipes to different parts of the city. It is estimated to contain 11,600 inhabitants. It is 180 miles north-west of Mexico.

CHIKANGA. See Chicanga.

CHI'LBLAIN, *n. s.* From chill, cold, and blain; so that Temple seems mistaken in his etymology, or has written it wrong to serve a purpose. Sores made by frost.

> I remembered the cure of *childblains* when I was a boy (which may be called the children's gout), by burning at the fire. *Temple.*

Chilblain, in medicine, a tumor affecting the feet and hands; accompanied with an inflammation, pains, and sometimes an ulcer or solution of continuity; in which case it takes the denomination of chaps. Chap resembles gape, both in sound and appearance. Chilblains are occasioned by excessive cold stopping the motion of the blood in the capillary arteries. See Pernio.

CHILD, *n. s.* & *v. n.*
Chi'ld-bearing, *part. s.*
Chi'ld-bed, *n. s.*
Chi'ld-birth, *n. s.*
Chi'lded, *adj.*
Chi'ldhood, *n. s.*
Chi'ldish, *adj.*
Chi'ldishly, *adv.*
Chi'ldishness, *n. s.*
Childless, *adj.*
Chi'ld-like, *adj.*

Goth. *kyld*, *kulld*, from eld, a fœtus; Sax. cild; Goth. *kylla*, to beget; Scot. *chiel*; Span. *chula*, a youth. Child is the human offspring in a state of infancy. Childhood ceases with youth; the age of youth ceases when that of manhood begins. Child is of either sex, though Shakspeare uses it as characteristic of the female. The compounds, childish, childishly, and childishness, are obvious; and, when applied to their seniors, are expressive of trifling conduct, or weak understanding. Childhood is the infant state of existence. A pregnant woman is with child. A mother is said to bear a child when she brings it into the world. It is then born, and hence the participle childbearing as well as birth, or childbirth, the name of the act. To child was formerly used for to bring forth children. Childless is having no child. The compounds, child-bed, and child-bed-linen, require no explanation. In former times the cognomen childe was prefixed to the family name by the eldest son; and the appellation was continued until he succeeded to the title of his ancestors, or gained new honors by his prowess. It is hence that such names as childe Horn, childe Maurice, &c. are found in old romances.

The plural, 'children,' is applied to all the descendants of a particular man, or founder of a family, how remote soever their generations from the original stock; as the children of Edom, and the children of Israel. It is also used metaphorically to describe some generic good or evil quality that applies to any class or division of mankind; as children of light, and children of darkness. The metaphorical applications speak for themselves.

A I have said thurghout the Jewerie
This litel *child* as he came to and fro,
Ful merrily than wold he sing and cry
O Alma Redemptoris evermo. *Chaucer.*

A litle scole of Cristen folk ther stood
Down at the ferther end, in which ther were
Children an hepe, comen of Cristen blood,
That lerned in that scole yere by yere
Swich manere doctrine as men used there;
This is to say, to singen and to rede,
As smale *children* don in hir *childehede*. *Id.*

Therein three sisters dwelt of sundry sort,
The *children* of one syre by mothers three,
Who dying whylome, did divide this fort
To them by equall shares in equall fee. *Spenser.*

The lion's whelps she saw how he did bear,
And lull in rugged arms withouten *childish* fear. *Id.*

The sons of lords and gentlemen should be trained up in learning from their *childhoods*. *Id. on Ireland.*

If it must stand still, let wives with *child*
Pray that their burthen may not fall this day,
Lest that their hopes prodigiously be crost.
Shakspeare.

Now I have stained the *childhood* of our joy
With blood, removed but little from our own. *Id.*

Mercy on 's! a bearne, a very pretty bearne!
A boy, or *child*, I wonder? *Id.*

How light and portable my pain seems now,
When that which makes me bend, makes the king
bow;
He *childed* as I fathered. *Id.*

The funerals of prince Arthur, and of queen Elizabeth who died in *childbed* in the tower. *Bacon.*

Learning hath its infancy, when it is but beginning and almost *childish*; then its youth, when it is luxuriant and juvenile. *Id. Essays.*

To thee
Pains only in *childbearing* were foretold,
And, bringing forth, soon recompensed with joy,
Fruit of thy womb. *Milton's Paradise Lost.*

Childless thou art, *childless* remain; so death
Shall be deceived his glut. *Id.*

When I was yet a *child*, no *childish* play
To me was pleasing; all my mind was set
Serious to learn and know. *Paradise Regained.*

As to *childing* women, young vigorous people, after irregularities of diet, in such it begins with hæmorrhages. *Arbuthnot.*

Women in *childbed* are in the case of persons wounded. *Id. on Diet.*

The actions of *childishness*, and unfashionable carriage, time and age will of itself be sure to reform. *Locke*

Nothing in the world could give a truer idea of the superstition, credulity, and *childishness* of the Roman catholick religion. *Addison on Italy.*

She can give the reason why one died *childless*. *Spectator.*

Let no one be actually married, till she hath the *childbed* pillows. *Id.*

Who can owe no less than *childlike* obedience to her that hath more than motherly care. *Hooker.*

Together with his fame their infamy was spread, who had so rashly and *childishly* ejected him. *Id.*

Some men are of excellent judgment in their own professions, but *childishly* unskilful in any thing besides. *Hayward.*

He to his wife, before the time assigned
For *childbirth* came, thus bluntly spoke his mind.
Dryden.

It was for a long time imagined by the Romans, that no son could be the murderer of his own father; and they had therefore no punishment appropriated to parricide. They seem, likewise, to have believed with equal confidence that no father could be cruel to his *child*, and therefore they allowed every man the supreme judicature in his own house, and put the lives of his offspring into his hands. *Johnson's Rambler.*

Fret not thyself thou glittering *child* of pride
That a poor villager inspires my strain,
With thee let pageantry and power abide,
The gentle muses haunt the sylvan reign. *Beattie.*

Waste youth in occupations only fit
For second *childhood*, and devote old age
To sports, which only *childhood* could excuse.
Cowper.

'Tis the clime of the east—'tis the land of the sun—
Can he smile on such deeds as her *children* have done?
Oh! wild as the accents of lovers' farewell,
Are the hearts which they bear, and the tales which
they tell. *Byron.*

Yet a fine family is a fine thing
(Provided they don't come in after dinner);
'Tis beautiful to see a matron bring
Her *children* up, if nursing them don't thin her. *Id.*

Her graceful arms in meekness bending
Across her gently-budding breast—
At one kind word those arms extending
To clasp the neck of him who blest
His *child*, caressing and carest,
Zeleika came—and Giaffar felt
His purpose half within him melt.
Id. Bride of Abydos.

CHI'LDERMAS DAY. From child and mass. The day of the week, throughout the year, answering to the day on which the feast of the Holy Innocents is solemnised, which weak and superstitious persons think an unlucky day.

To talk of hares, or such uncouth things, proves as ominous to the fisherman, as the beginning of a voyage on the day when *childermas day* fell, doth to the mariner. *Carew.*

CHILDERMAS-DAY, or Innocents'-day, is an anniversary held by the churches of England and Rome on the 28th of December, in commemoration of the children of Bethlehem massacred by order of Herod.

CHID-WIT, a power to take a fine of a bondwoman unlawfully gotten with child, that is, without consent of her lord. Every reputed father of a base child got within the manor of Writtel in Essex, pays to the lord a fine of three shillings and four pence, where child-wit extends to free as well as bond women.

CHILE. See CHYLE.

CHILI, a large country on the western side of South America, running along the coast of the Pacific Ocean between the twenty-fourth and forty-fourth parallels of south latitude and between 69° 50" and 74° 20' W. longitude from Greenwich. The reader will find an account of all its most interesting geographical and political features in our article AMERICA, SOUTH. We subjoin only what the unusual attention, excited by the rising republics of South America, may render important, by way of addition.

Chili is for the most part a country of valleys, chiefly on the west of the Andes, from which high ridges run out to a considerable extent towards the sea, enclosing gentle eminences and delightful vales. The great ridge generally rises abruptly with many frightful precipices. The grand chain of the Andes, or Cordilleras, forming the eastern boundary of the country, is continued in an unbroken line through the whole length of the Continent, from Darien on the north, nearly to the straits of Magellan southward. These mountains are impassable, except at particular points, and of these passes there are four in the neighborhood of Chili; that of the Patos, opposite to the town of San Juan, now fallen into disorder, and very steep; that of Uspallata, near Mendoza, called the Grand Pass; that of Portillo, nearly 100 miles south of the former, where there are two chains of the Cordilleras, and that of El Planchon, opposite Conception, said to be passable with ease by carriages. These mountains, though not the highest in the whole chain, those being situated nearer to the equatorial parts, are yet of prodigious elevation. Mr. Caldcleugh says, that an hour and a half before he reached the highest point, every trace of vegetation disappeared except one, a new species of fragosa, and that this was soon left behind; when at last they arrived at the Pass, which he computes was at least 12,800 feet above the level of the sea; still they had but reached the edge of the lower limit of perpetual snow; nothing else was to be seen above them but the white peaks towering still to an amazing height. From this situation they computed that the prospect to the east (for in every other direction it was intercepted by lofty chains) reached to a distance of not less than eighty leagues. The color of the sky was an intense blue. (Caldcleugh's Travels in South America). The parallel ridges of hills, which run out towards the sea, are of considerably less elevation and have passes through them, by which the inhabitants of the enclosed valleys have a free communication one with another.

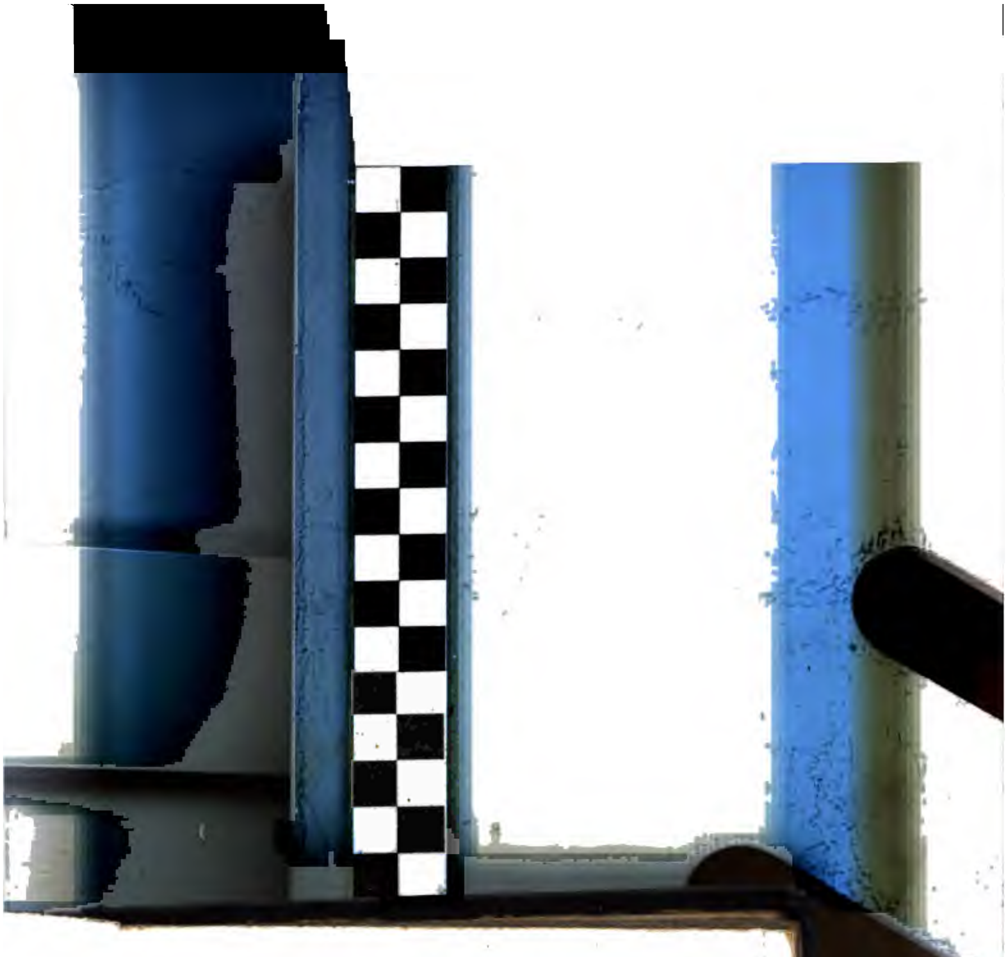
Many of these mountains are volcanic, and several bear decided marks of having been so, though no eruption has taken place from them within the memory of man. The fourteen mentioned in our previous article as in a constant state of eruption, being encompassed by other eminences, their destructive effects never reach the plains; two only are found beyond the district of the Chilian range of the Andes, the chief of which is the great volcano of Villarica, near the lake of that name; in the midst of perpetual snows it is constantly sending out its ashes and fiery streams, and is visible at the distance of [illegible] miles. A slight horizontal motion of the earth is the only indication of earthquakes that has been experienced since 1782, but the inhabitants have in general constructed their houses and cities with a view to a quick escape from more serious convulsions.

Very few countries in the world are so abundant in rivers as Chili; an almost incredible number of streams, of greater or less magnitude, roll down from the Andes, where they have their source. They are said to be not less than 123; fifty-three of them communicating with the ocean, and carrying with them the waters of all the others. We have already enumerated the most remarkable.

The Laquen or Villarica, more than seventy miles, and the Nahuelgapi, eighty miles in circumference, are the most remarkable lakes in the country. The waters of these are fresh; but there are many others, some in the Spanish maps, the waters of which are salt, the largest from twelve to twenty miles long. The principal islands belonging to Chili are, CHILOE and a cluster surrounding it forty-seven in number, which see.

Gold is so abundant in Chili that, in some parts, there is hardly a mountain which does not contain it; it is found also in the sands washed down by the mountain torrents. In the south there were some productive mines, but since the Spaniards have been expelled, these are not allowed to be worked. It is found in almost every kind of stone or earth, but most frequently in a brittle red clay-stone, and in small particles and bright spangles of singular forms, that may be separated with a chisel. Sometimes the pickaxe is used in working the mines, and sometimes the aid of gunpowder is called in, as circumstances may require. The poorer classes only wash the sands. The quantity annually found is said to amount to four millions of dollars.

The richest silver mines are in the provinces of St. Jago, Aconcagua, Coquimbo, and Copiapo. It is sometimes found pure, and frequently mixed with various ores, with sulphur and arsenic. The mine of Uspallata produces the greatest quantity. Copper is found in all parts, but the richest mines are between the twenty-fourth and thirty-sixth degree of latitude. Between Coquimbo and Copiapo there are as many as one thousand, but those only that yield half the weight in refined copper. The lead is of good quality, and is not only found mixed with a portion of silver and gold, but it is obtained in all the silver mines. Of all the semimetals, which are abundant in Chili, none are worked except quicksilver; of this there are rich mines in the before-mentioned provinces; but the sale of it was a royal monopoly; while this country was dependent on Spain, the digging of it was prohibited; these restrictions, however, will probably be now removed. A great variety of earths, clays, bituminous substances and salts are produced: one sort of clay is very fine and light and of agreeable smell, of which in some places the



monks make jars, bottles, &c. and paint them beautifully. There is a kind of lime or gravelly chalk, which the inhabitants use in white-washing their houses; there are also the mountain green and blue native ceruse, lapis calaminaris, and ochres of different colors. The membranaceous mica, or Muscovy glass, is found here in most transparent and very large sized plates; with this the people not only glaze their houses, but make of it artificial flowers. There are likewise different kinds of sand, black mixed copiously with particles of iron, another sort of a fine blue and a cement sand near Talca finer than that of Italy, and apparently of volcanic origin. Chili has extensive quarries of freestone, flint, rock crystal, and plain and variegated marbles; and an almost infinite number of spars, the most beautiful of which is one of an hexagonal form, and perfectly transparent. The mountains contain precious stones as agate, and jasper, and the rivers wash down small rubies and sapphires, evidently showing that the higher parts of the country produce others of greater size and value. Blocks of rock crystal are obtained in the Cordilleras, large enough for columns seven feet high. A little hill near Talca is said to consist almost entirely of amethysts, and it is supposed that Copiapo owes its name to the vast number of turquoises found near it.

Chili enjoys a rich soil, and a vigorous and abundant vegetation; beautiful evergreens cover the plains, valleys and sides of the mountains; every season produces vegetables suited to the climate, and plants are found common both to this country and to Europe. In the northern parts tropical plants, such as the sugar-cane, the pine-apple, the cotton, the banana, the sweet potatoe, jalap, mechoacan, &c. thrive exceedingly well, and the most beautiful flowers are so abundant, that the fields look like so many gardens. The climate is so fine and the air so salubrious, that the inhabitants are liable to few infectious diseases; the domestic animals live all the year in the open fields, where, from feeding on aromatic plants, their flesh acquires a flavor unequalled in any country. The Chilians need no hay, as the herbage never fails, and in some pastures the grass grows so high as to conceal the sheep that are grazing in it. As in all countries south of the equator, spring commences here in September, summer in December, autumn in March, and winter in June. In Chili the rainy season is in the winter; the north and north-west winds which most blow at that season always bringing rain, while, during the spring and summer, the south and south-west winds prevail, invariably occasioning a clear sky. In the northern provinces it seldom rains, but in the south frequent and dreadful storms are sometimes experienced near the sea; in the islands it frequently rains in the summer. In those parts remote from the Andes, thunder is very seldom heard even in summer. Near the sea snow is never seen; in the vicinity of the mountains it falls sometimes once in five years, but seldom remains a single day. A white frost is sometimes seen, and a small degree of cold experienced in the month of August; but after sun-rise the temperature is like that of a fine spring day. In the Andes, on the contrary, great quantities of snow fall from April to November, so that for the greatest part of the year the mountains are impassable. The want of rain in summer is, however, supplied by most plentiful falls of dew. On the coast it is often foggy, but it clears as the day advances.

In animals this country is not so abundant as other parts of South America; the species peculiar to it being only about thirty-six, though in the unexplored regions probably many more might be found. The most remarkable is, the vicunna or guanaco, in shape like a camel, but differing from it in being most vigorous in the most inclement regions, in the ice and snow of the Andes. The Peruvian sheep is found here. The wild goat, the dog, the fox, and the pagi or lion, resembling that animal in size and roaring, but without a mane, abound in this country, and all European animals thrive, and some even grow larger, when imported into Chili. There are 135 species of birds belonging to the land, and the species of sea birds are innumerable. Fish is abundant on all the coast; seventy-six sorts differ from those found in the northern hemisphere; the fresh waters also swarm with them.

The manners of the inhabitants are represented as remarkably free, and very remote from that stiffness and reserve, which even to a late period prevailed in Peru, where the Americans were subject to every species of oppression from the overbearing Spaniards, and a dreadful system of espionage destroyed all the happiness of society. In Santiago mirth and gaiety, frankness and confidence, prevail; all ranks hail each other as countrymen, and own no master but their duty and the law. Their dress is greatly assimilated to the English and French costumes, and their domestic manners are of late much improved. Instead of sitting cross-legged at low tables, they now sit on chairs at higher tables like the English; no longer eating out of the same dish, their meals are served up with regularity and neatness. Scarcely an evening passes without social parties, balls, or concerts, and they perform the Spanish dances with peculiar elegance. There being few carriages in use among them, it is usual, at the period of the company's retiring, for the band to escort the parties home, and as the nights are so fine little attention is paid to the shortest road. The Chilians are remarkably fond of music, and all the children, as soon as they can comprehend anything, are taught to play, usually by their mothers, there being, it is said, no music master at St. Jago. They have greatly improved in the musical instruments they use, the jarring of the old halfstrung guitar has been exchanged for the piano, and the tasteless dance of the country has yielded to the elegant country dance.

In the neighbourhood of Conception, to the south, the natives, called Araucanos, are and ever have been an unconquered race. Valdivia the Spanish general, as has been mentioned in the article South America, could not subdue them, and at last fell by their hands. Before the late revolution these people remained perfectly free and used to come to the frontiers to carry on a small traffic They supplied the creoles with very superior horses, and coarse woollens, and in return took wheat and European goods. They are said to be numerous, and among them has been found a tribe of European whites, whose origin is very uncertain. Their language is well known, and a dictionary of it has been made by one of the Jesuit missionaries, who had at the time of their expulsion introduced two establishments into the country. How this order contrived to do this in a nation so inimical to Spaniards, is wonderful; probably their sanctity of life and manners, together with their medical skill, and insinuating manners, contributed much to this preference.

The Chilian language is superior in pronunciation and elegance to the Spanish of the Eastern shores of South America, and without any of those barbarisms so common in Buenos Ayres. There is no university at Santiago, but at the Institute there is a large school where 400 boys are educated at the public expense, besides many private seminaries. 'The only public library,' says Mr. Caldcleugh, 'is that in the Institute, under the immediate care of Don Manuel de Salas, a man of much information, and very ready to communicate it to others. It consists of several thousand volumes, some of which belonged to the College of Jesuits, and some MSS. many of which, relating to the early history of the country, are of a curious and interesting nature. Prior to the revolution, all books published on this side of the continent were printed at Lima, and probably no press existed at Santiago; one press has been established since, which is chiefly exployed in printing the gazette and political pamphlets. No books, however, have been published, except some trifling elementary works. The usual dress used in attending divine worship is black. When the church bell sounds, at half past six in the afternoon, the greatest silence prevails,—all carriages and carts stop for two or three minutes, until a change in the sound announces that the prayer is finished.'

As comparatively few foreigners have emigrated to this country, the manners of the higher classes have not been much corrupted. They are remarked for the union that subsists in their families, and the tenderness and respect shown by children to their parents. They are exceedingly kind and hospitable to foreigners. The ladies have great strength of intellect, accompanied with almost infantine simplicity; they are more accomplished than in many other countries, and their acquirements are attained with very limited means, they are possessed of great personal charms and sweetness of disposition, and are entitled to the highest character for delicacy and modesty. The lower classes are frequently fawning and deceitful, addicted to cheating, and fond of all sorts of gambling, at which they will spend whole days, and part with every article of their dress. On the other hand they are very compassionate; any appearance of distress will excite their commiseration, and they will spare no pains to alleviate it. They are industrious, and divide various toils with the women, which in Buenos Ayres the men think beneath them. The people as a whole are highly patriotic, and treat the natives of the last-mentioned state with great disdain, which is plentifully returned.

While sending the foregoing pages to press, we are favored with Mr. Myers's intelligent Travels in Chili and La Plata. This gentleman embarked from England with his family in 1819, to conduct a commercial speculation in Chili, and travelled across the country, from the eastern to the western shore of South America, compiling an excellent political and statistical account of the districts through which he passed. We cannot, at this time, better avail ourselves of the information contained in his work, than by a few extracts from it under the following heads.

CLIMATE.—At Mendoza, a large town near the foot of the Andes, 'We spent,' says he, 'the evening with Dr. Colesberry, a physician from the United States of North America, who had left his native country laboring under a severe pulmonary affection, from which he had entirely recovered in the genial climate of Mendoza. He follows his profession, is one of the most amiable and deserving men I ever met with, and is justly admired by all the inhabitants of Mendoza. To this deserving gentleman I shall ever feel under great obligations for the kind attentions he showed to my wife during her long subsequent sojournment in Mendoza, and for the friendly assistance he rendered us at the period of our great embarrassment at Villa Vicencio. Dr. Colesberry described the climate of Mendoza as exceedingly salubrious, especially in cases of pulmonary affection, instances of which had come under his observation, and which have since been confirmed by others. Dr. Gillies, a Scotch physician of great ability, now resident in Mendoza, has afforded a no less remarkable instance of the efficacy of this climate; he was obliged to leave his native country from a pulmonary affection, from which he was quickly relieved by the air of Mendoza. The population was described by Dr. Colesberry to be very healthy. I enquired particularly respecting the tendency to bronchocele, having noticed two goitres as I entered Mendoza: this affection he assured me was prevalent here, as well as in San Juan, a town 150 miles to the northward, but not so much so as in the more northern districts of Tucuman and Santiago del Estero, which are still farther removed from the elevated Cordillera, and the region of snow. These places are particularly noted for the frequency of bronchocele; these towns are situated in swampy valleys, subjected to insufferable heats, surrounded by forests and stagnant lakes, which render the air extremely insalubrious: he had never observed bronchocele combined with cretinism, as we find in certain alpine districts; he had, indeed, nowhere observed an idiot, nor had he seen an instance of mental derangement. Deformity was seldom met with, and the Mendozinos, from the blessings of their climate, were free from numerous evils to which other countries are much subject.'

PASSAGE OVER THE GREAT CHAIN OF THE ANDES.—'On leaving Mendoza, the road lies through the suburbs and cultivated grounds, which extend above a league and a half to the northward. The route is then about north by east over the same description of Travesia, as that which lies between Mendoza and the Desaguadero already described. At the distance of five leagues, the road divides into two branches, one tending about N.N.E. to San Juan, the other about N.N.W. to Villa Vicencio. Where the road separates, a low branch of the Paramillo range of mountains juts into the plain, and approaches within one league of the road; it is a lime-stone formation, and is quarried for the purpose of supplying the town of Mendoza with lime, and hence is called the Calera. Two leagues further we approach the foot of a detached low series of hills, called the los Cerrillos, and, passing to the westward of them, the road gradually leads towards the Cordillera range. Thus far the road is sandy; but, about a league before reaching the Cerrillos, it begins to be stony, and continues more or less so till we reach the Cordillera; for, over this part of the Travesia, the currents of water flowing from the three extensive ravines of Villa Vicencio, of the Higuera, and of Canota, have spread over its whole surface immense quantities of the sharp angular fragments of stone that accompany the alluvial matter brought down from the hills by the torrents during the rainy season. From the Cerrillos, the course tends for three leagues in a W.N.W. direction, towards an opening in the mountain range, in which there is a small spring of water, this is at a place called El Coral Viejo. We now enter a ravine; the hills on each side are at first of inconsiderable height, but as we advance the valley becomes narrow and more stony; its bed is covered with bushes of hanilla, retamo, verbena, &c. Higher up this narrow ravine, the mountain ranges are of considerable height; and, at the distance of fifteen leagues from Mendoza, we reach the post-house of Villa Vicencio. The hills are of hornblende slate, including seams and fissures filled with sulphate and carbonate of lime. Following up the course of this lateral branch of the main ravine, to the source of the brook, we find, at the distance of a mile and a half, the hot springs of Villa Vicencio: the intermediate ravine is narrow, and enclosed on each side by very lofty hills; its tortuous bed is filled by a kind of tufa, an alluvial deposit of sandy marl, indurated by a considerable admixture of the carbonate and sulphate of lime, encrusted upon twigs and bushes, washed from the hills by the mountain torrents. At the head of the ravine, the little brook falls over a cragged precipitous rock, and forms a small but picturesque cascade; it is necessary to scramble up this rock to reach the baths, which are situated in a beautiful little amphitheatre, bounded on all sides by lofty mountains. The baths are shallow pools, dug out of the tufa, about eight feet in diameter, and two feet deep; from the bottom of each flows a small spring, so that the water of every one of them is distinct; the quantity which flows into each is exceedingly small. There are five of these springs: of the first and highest, in the month of October, when the thermometer in the shade stood at 66° Fahrenheit, the temperature was 96°; of the second it was 88°; of the third 92°; of the fourth 89°; of the fifth 75°. The water of these springs has no peculiar taste or smell; but there arises from the bottom of each basin considerable portions of gas, which gives them the appearance of boiling. I had with me no re-agents with which to examine the nature of these mineral waters; but I apprehend the air that arises is simply carbonic acid gas, which is the more probable, as I observed a dead frog floating in one of the pools. At about fifty yards distant from the huts of Villa Vicencio are the ruins of old buildings, formerly the smelting works for the reduction of the silver ores of a mine in the Paramillo range: this place was selected as the nearest to Mendoza where water and fuel could be found, although it is eighteen leagues distant from the mines, whither the ore was brought on the backs of mules. The foundation walls alone exist; they are constructed of rude fragments of stone, cemented with mud: much scoriæ and refuse lies around. I could, however, nowhere perceive the vestiges of a trapiche, or water-mill, for the pulverisation of the ores. Although there is nothing particular about this place, either as to scenery or productions, deserving of particular notice, still the change of situation is so contrasted with the unvaried country hitherto seen on the road from Buenos Ayres, that, however uninteresting in itself, every object is viewed by the traveller with great curiosity and indescribable pleasure. The height of this place above the level of the sea is 5382 feet, and above Mendoza 2780 feet: it is extremely bleak in the winter season, and at all times very subject to storms: snow falls here generally during the winter months.

On leaving Villa Vicencio, we turn out of the ravine and enter another, which is in fact the main valley. The road continues to wind sometimes north-east, at others W.S.W., along the narrow bed of the valley, which is covered with bushes of jarilla, retamo, verbenas, algarrobas, lyciums, &c., and is bounded by lofty impending rocks, partly bare, but mostly covered with soil thinly scattered over with bushes, cacti, and many plants deserving of notice. One spot on this road is remarkable for the abundant growth, on the hills as well as in the valley, of a dipsacus, which resembles our common teazel; the spot is in consequence called the Cardal by the muleteers: here, as well as at many intervals of a mile or two, are found on the sides of the hills a little pool of water, supplied from a diminutive though never-failing spring. These places are known only to the arrieros; they have each their proper name, and are used as resting places for the troops of mules which are continually travelling to and from Chili. The hills are pretty well covered with pasture, which, in these mountainous countries, must not be supposed to mean those beautiful grassy swards with which our hills at home are everywhere covered, but to signify small plants of many kinds. Here the cattle devour every vegetable substance, even bushes, when all other plants fail. It is not, therefore, from the richness of the pasture that these recesses are of value to the Mendozinos, but from the security they offer for breeding cattle; in many places among the hills we perceive many herds. The mountains are so steep and lofty that the sun, which rises in the plains at five o'clock, does not shine in these valleys till nearly eight in the morning; they seem principally composed of hornblende slate. At the distance of a league from the post-house we pass an angle, remarkable for a lofty mountain, whose precipitous rocky face is covered with a species of lichen, which gives to it a golden hue when the sun shines on it; hence its name El Cerro Dorado, the Golden Mountain. At the distance of another league the valley becomes more contracted, the impending rocks grow more precipitous and bare until we enter the narrow pass of the Angostura, the access to which is over barren rocks, from among which issue little springs of fresh water. The sides of Angostura are perpendicular, to the height of from 200 to 300 feet; its length is about 250 yards, and its breadth about seven yards. The geological formation of the whole ravine is similar to that about Villa Vicencio; and the whole length of the valley, up to its origin, is in like manner filled with a similar tufa, which, in many places, is covered with a saline efflorescence. Pursuing the course of the ravine two leagues further, we reach the Alojamiento de los Hornillos, where there is a small hut, like that of Villa Vicencio, and a never-failing spring of water: here, as its name implies, existed formerly works for reducing the ores from the San Pedro mines.

From this place we begin to ascend the Paramillo, which is the name given to a very long and narrow mountainous ridge, lying between the plain of Uspallata and Mendoza: it is evidently of very different formation from the more western, or main Cordillera, and is said to run independently of it. The path up the ascent is gradual and winding; and, on reaching the summit of the first height, we have presented to us a beautiful view of the distant plains, in the midst of which Mendoza is easily distinguished at the distance of above forty miles, in a straight line. The breadth of the summit is several leagues in extent, and is broken into numerous undulating risings and descents: the botanical novelties are not very numerous, nor very remarkable. I observed, however, a new hoffmansaggia, different from that of Mendoza or Aconcagua.

I regret that I could not determine the height of the Paramillo, being prevented by the occurrence of a violent tempest, though in the valleys below a fine sunshine reigned. I have crossed the Paramillo four times, and on every occasion I have met with squally weather: hardly a day passes without rain, though it be but a few drops, and wind is never wanting on this inhospitable spot. The course over the Paramillo is nearly west: the descent, which is comparatively very trifling, leads to the head of a narrow ravine, the bed of which we follow; and, at the distance of about a league, pass by the mines of San Pedro, better known as the mines of Uspallata, which have been several years neglected for want of capital.' This pass of Uspallata we have before noticed as one of the principal roads across the Andes. We regret we cannot follow this gentleman further.

Of the curious natural production called Bezoar stones, he says, 'A friend of mine, an intelligent surgeon, on his return to Chili from Mendoza, over the Cordillera, brought a number of rounded stones he had collected about the springs of the Inca's bridge, as well as at some distance from them; these, he supposed, were Bezoar stones, voided by the guanacos, that frequently came down from the mountains to drink the mineral water, which, he conjectured, may act upon them as an emetic. He therefore drank some of the water, which produced those effects on him. The fact appears confirmed by the circumstance of these stones having been nowhere else discovered in the Cordillera, except at this place, and that it is known only to a few muleteers, arrieros, who have kept the secret, to profit by the sale of the calculi, which they carry to Mendoza and Aconcagua. These stones are sought for by many, who believe that, having been placed before the sacred altars, they become possessed of wonderful curative powers, in which respect they resemble the famed Bezoar stones of the east, which, even to the present day, are highly prized for their alexipharmic virtues. The calculi my friend brought with him varied in size from that of a cherry to a ball of two inches in diameter; externally they were somewhat globular, slightly flattened, or compressed in places, of an ochreous color, having a smooth and very fine grained surface, and soft enough to be scratched with a knife; internally they appeared composed of distinct laminar concretions, which are very difficult to separate. I sawed one through the middle; its section was similar to other Bezoar stones I remember to have seen; like them the concretions appear formed upon a blackish nucleus of extraneous matter; the first lamellæ are thin and scaly, the others increase in thickness as they attain a larger diameter; they are too of various colors, so that the section of the stone presents an onyx-like configuration, the concentric shades being of various intermediate tints, between white and ochreous brown: some of the layers are compact, and of a crystalline texture, while others are dull and porous. The calculi are composed apparently of carbonated lime, for they strongly effervesce in dilute common sulphuric acid, and I regret having no other acid at hand for a more minute examination. Their specific gravity is 2·47.'

WINTER TRAVELLING IN THE CORDILLERA.—'I have hitherto spoken only of the passage over the Cordillera during the periods when the roads are clear of snow: in the months from June to September, the passage cannot be effected without considerable personal exertion, much delay, and at a far greater expense: at these times the valleys on both sides of the Cordillera, as well as the Cumbre itself, are deeply covered with snow, so as to be impassable by mules: in this case it is necessary to travel on foot the whole way from the Punta de las Vacas to the Guardia, a distance of sixty-six miles. On these occasions it becomes requisite to hire peons to carry the provisions, baggage, and saddle equipage, which of course is attended with considerable expense. Since the establishment of foreign commercial houses in Chili, the passage of travellers and expresses across the Cordillera, in the winter season, has become more frequent. The courier too passes and returns regularly every month: the Spaniards always entertained too much dread of the cold to venture upon a journey attended with so much inconvenience and personal exertion. The fatigue of walking such a distance over loose snow is certainly considerable; but perhaps the greatest inconvenience experienced is the painful inflammation produced in the eye-lids from the effect of the too powerfully reflected light, proceeding from the brilliant whiteness of the snow, which, in intervals of fine weather, is generally increased by the immediate reflection of the solar rays. These effects might perhaps be prevented by the use of goggles of green glass. Should the weather threaten an approaching tempest, it is always prudent to hasten for the nearest casucha, and take advantage of that shelter till the storm has passed over, and the sun has again begun to shine in a cloudless sky. I have known persons who have been detained a week in one casucha, and a fortnight in another: this indeed frequently happens to the courier, so that the delivery of the mail is retarded for six weeks or two months in cases of very bad weather. It is, however, possible to pass from the Guardia to the Punta de las Vacas in five days, should no impediment from the weather intervene, and should the snow have become tolerably firm upon the surface. Great fatigue is experienced in the ascents: the descents would perhaps be more laborious, but for a contrivance commonly practised by the couriers and peons accustomed to the journey. A sledge is formed of a piece of raw hide, upon which the man places his saddle-traps, or his load, seats himself thereon, lashing all firmly round his waist by hide thongs; having made this adjustment on the summit of the declivity, and suffering himself to slide down by his mere weight, he guides his course, or slackens the rapidity of his descent, by plunging his large knife, which he firmly grasps in his hand, into the snow: the resistance thus produced sufficiently retards his progress should he have acquired too much velocity; or, like a rudder, it inclines his course to the right or left, as he may desire; the labor of the journey is thus reduced. The traveller has nothing to fear from avalanches of snow, which are unknown, or are at least of trifling magnitude, and out of the reach of his track. The snow of the Cordillera does not, like that of colder latitudes, remain long in a soft state. Soon after it falls the sun has sufficient power to melt the surface of the snow, which, in this half-fluid state, filters into the porous mass beneath, and, freezing again, converts the whole into a compact hard body; and it thus becomes so consolidated as to require the heat of an almost vertical sun before it finally disappears from the surface of the mountains.'

COST OF THE PASSAGE.—'The cost generally attending the passage of a traveller across the Cordillera, during the winter season, is 350 dollars, about £70 sterling; while at other seasons, with the same luggage, that is, no more than is necessary for his journey, the expense of his passage ought not to exceed twenty or thirty dollars, *5l.* to *7l.* 10s. He cannot set out on his journey, in winter time, without having made previous arrangements, which will detain him in Chili or in Mendoza several weeks. He will travel from Mendoza as far as the Punta de las Vacas with mules; the intermediate space of snow, which cannot be traversed by animals, is then performed on foot, as before described, until he reaches the termination of the icy barrier, which generally is about the Guardia or the Ojos de Agua, at which place the mules, purposely brought from Aconcagua, are in readiness to convey him to his ultimate destination.'

We have the following spirited description of the earthquake in Chili in 1822.—'The great earthquake, before alluded to, happened during my residence at Concon, at the mouth of the Quillota, or Concon river. At half-past ten o'clock on the night of Tuesday, the 19th November 1822, as my family were retiring, the first oscillation was felt. It was very sudden and violent; we were all alarmed, and paused for an instant, when the falling of the glasses from the sideboard, the cracking of the timbers of the roof, and the rattling of the falling tiles, caused us to rush out of the house. The earth was violently convulsed, heaving up and down in a manner hardly conceivable, and as little capable of being accurately described as our feelings. The timbers of a large corridor were breaking in all directions, and flying off in fragments, while the air was filled with dust from the falling roof. The situation of our two children instantaneously occurred to us. I rushed into the falling building, snatched one boy from one of the front rooms, and, carrying him in my arms, ran to the back of the house, where the other boy was in bed; my sensation in this painful situation cannot be imagined. I ran with my two boys to their mother and their aunt; and by the time I joined them the great shock was ended; it continued about two minutes. After a lapse of about three minutes, the agitation returned violently, and continued for about a minute, when several of the strong pillars of the corridor were shivered. During this time there was a loud rumbling noise, like the distant echo of thunder in a mountainous country. The heaving of the ground seemed not only to consist of horizontal oscillations, but also of violent uplifting concussions, as if repeated explosions were exerting their force upon the roof of a hollow cavern under our feet, threatening to burst open the ground, or blow us all into the air. Our sensations were truly horrible. There was nothing remarkable in the appearance or state of the atmosphere; the moon and stars shone with their usual resplendence. Anxious to ascertain the state of my mills, which were on the edge of the river, about fifty yards from the house, I proceeded towards the spot, and was met by my English workmen, who told me the building had been thrown down, that the walls on both sides had been precipitated into the mill-stream, and the roof had fallen in. While making a survey of the damage, another violent shock warned me of my danger; the mill at the time of the first shock was in action; the miller, a young man recently arrived from England, on hearing the first noise of the earthquake, concluded that a nail, by some accident, had got between the mill-stones: he therefore shut down the sluice-gate, and raised the running-stone. At this moment the walls of the outer room fell, and caused him precipitately to quit the building. During three quarters of an hour we experienced continual and severe shocks, the intervals between which seldom exceeded five minutes, many of them shaking down portions of the buildings. The Creole servants walked about [illegible] almost in a state of despair, beating their breasts, and repeating their Ave Marias. Another of my English workmen, who lived in a cottage close to [illegible]; part of his house had been thrown down. The major-domo of the neighbouring [illegible], sent by his master, came to [illegible] after us, whence we heard that his house as well as the chapel, had also been levelled to the ground. In the course of the night, a friend came from his estate at Quintero, a few miles to the northward, to ascertain what had happened to us—his own house, like ours, had been shaken to pieces; he informed me that the ground over which he had passed was much cracked, and rent in many places in wide chasms. The sand-hills had been thrown into the Quintero Lake, and the ford at the usual place across it was greatly swelled, so that the water rose above his saddle. This appears to have been caused by an influx of salt-water into the lake during the great rise of the sea, which accompanied the first and most violent shock. At Quintero great part of the house was destroyed, and the family, consisting of my wife's sister, her husband, child, and servants, had escaped without much serious injury; though, in the endeavour to make her escape, a large book-case fell, knocked her down with her infant in her arms, and fell upon them. She was happily extricated from this perilous situation by her husband, with only a few bruises. We lighted a fire in the middle of our enclosure, and seated ourselves around it till the morning dawned, when I was better able to ascertain the damage that had been done. The house was not so much injured as I expected; the outer walls were rent in several places, and the partition walls thrown down. I had recently put on a new roof of good carpentry, 120 feet long and fifty wide; and this was secured by the corridor, and strong iron ties running through the walls at proper intervals, and but for this we should probably have been all buried in the ruins of the building. The ground of the yard to which we retreated was cracked in all directions. The mill-stream in many places was filled up by the falling in and collapsion of the banks. The ground between the mill and the river offered numerous evidences of the convulsions it had undergone: clefts, above a foot wide, presented themselves at the distance of every few yards, and in several places the ground itself had sunk two feet below its usual level. On many spots were numerous hillocks of sand and mud, which had been forced through the crevices. They appeared like mud volcanoes in miniature; some of these had again sunk, leaving in their places muddy pools. The tail course from the mill, which extended above 2000 feet towards the river, was filled up, and made level, partly by the collapsion of its bank, and partly by its bottom being forced up by the earthquake. In the course of the next day I learned the fate of the towns of Valparaiso, Quillota, Casa Blanca, and Limache; all these towns had been destroyed, together with a great number of persons, who had been buried in the ruins. For many days we had smart shocks of earthquakes. On the Saturday and Sunday following the earthquake I visited Valparaiso. On my way I found the houses at the Viña del Mar levelled to the ground. On entering Valparaiso I was astonished at the extent of the ruin, and distressed at the miserable appearance of the place, as well as at the forlorn and wretched condition of the people. The houses were nearly all unroofed; many had been thrown to the ground, while the thick walls of sun-dried brick which remained were split in all directions. The desolation was horrible; the large church of the Almendral, called La Merced, presented the most remarkable ruin. The tower, built of burnt bricks and good mortar, the walls of which, up to the belfry, were six feet thick, were broken into large blocks, and thrown to the ground. The tower was sixty feet high. The body of the church, however, I [illegible]. The [illegible] at one [illegible] thrown down, both fell towards [illegible] by the side walls, although much damaged, remained and supported the ridge roof of the [illegible]. The covering of the roof was entirely shaken off, and the whole body of rafters inclined considerably towards the north; and the few roofs of the houses in Valparaiso which were not thrown down, all inclined in the same direction. On each side of the church of La Merced were a number of square buttresses of good solid brickwork, six feet square; they stood at a small distance from the walls. Those on the western side were all thrown down, as were all but two on the eastern side; these two were twisted from the wall in a north-easterly direction, each presenting an angle to the wall. This twisting towards the north-east was remarked in other places. At Quintero, thirty miles to the northward of Valparaiso, the heaviest and largest pieces of furniture in the houses there were turned in the same direction. The whole population of Valparaiso had fled to the hills, on which they were encamped. At the further and narrow extremity of the town, called the Port, where the houses are built upon the solid rock, the damage was not so great as in the other parts of the town. The governor's house, the two castles, and the churches, being the most substantial buildings, were all shivered to pieces, the destruction being here, as in other places, in proportion to the thickness and solidity of the walls. It was fortunate that the earthquake did not happen two hours later, as nearly the whole population would then have been buried in the ruins; as it was, about 150 people were killed, and many were wounded or bruised.

No bombardment could have produced such complete ruin as the earthquake effected. The desolate condition of the people was lamentable in the extreme; and this was dreadfully increased on the night of the 27th, when, to their surprise and astonishment, it rained heavily. If any one thing more than another could add to their wretchedness, it was this unseasonable and unexpected fall of rain.

They who had escaped from the ruin of the town, and retired to the hills with such of their property as they could save, were some of them living in tents; the greater number were compelled to bivouac in the open air, and, while depending on the continuance of the usual dry weather, the rain, which so unexpectedly fell, put them into a state of almost absolute despair. It ceased, however, towards the morning; had it continued for a longer period, not only would it have destroyed their property, but it would have produced famine and disease, the most horrible apprehensions of which filled the minds, and wholly occupied the thoughts, of the unfortunate and miserable people. Rain in the month of November had never been known, and its occurrence during the continuance of the earthquakes was considered by the bigoted and ignorant Chilinos, as a mark of the divine vengeance for their own sinful lives, the conduct of the people in power, and the crime of permitting the English heretics to contaminate the country.

The extent of country over which the earthquake was felt appears to have been very considerable; Copiapo on the north, and Valdivia on the south, were shaken by it, although these towns are 880 miles apart: it was also felt throughout the whole range of the Cordillera, as far as Mendoza, and even as far as Cordova, though here the shock was comparatively weak, and the time of its occurrence an hour later than in Valparaiso. Cordova is upwards of 500 miles east of Valparaiso.

On the important subject of mines and mining, he says, 'Our countrymen at home are evidently deceived in imagining that the Chilinos understand but little of the art of mining: they may, on the contrary, be assured that they are very skilful and efficient miners, and will not only produce the ore at the earth's surface at a lower rate than others, but that, in their rude and economical processes, they will extract the metals at a much less cost. In the construction of the furnaces, and in other respects, many improvements may and will be introduced; but any one who has made correct observations upon the country, will, at one glance, perceive that all attempts to introduce foreign modes, new materials, or novel processes, will cause great confusion and loss. The Chilinos cannot, will not, comprehend any other than their old methods. Before any one attempts mining, he ought to gain sufficient experience and knowledge of the character of the people, and the resources of the country, so that he might be competent to calculate with certainty how far his arrangements could be adapted to the peculiar habits he will have to contend with, and the scanty materials he will be able to command. I can speak on this subject with the advantage of experience; I was at first deceived to a great extent, and so will all foreigners be who attempt any operations in Chili: the very customs and methods which to them will appear barbarous and inefficient, will be found, on better knowledge, to be grounded upon experience and reason; and to benefit by these observations, so as to apply them to their own particular views, they must so far exert their judgment as to trace them to their origin, and discover the necessities which have induced them. Necessity alone has been the author of national customs, and it cannot be denied that methods must vary according to the peculiar resources of the country, and the habits of the natives. On my arrival in Chili everything appeared to be irrationally contrived and barbarously managed; but the more I became acquainted with the people and their customs, the more I saw of the country and its productions, the better I understood the capabilities of the land, the more I discovered ingenuity in that which I before considered barbarous, and could trace a far better adaptation of those means to the condition of the people, and the present nature of the country, than our own English notions could possibly have contrived. It is the habit of an Englishman, educated in the midst of the most admirable contrivances, and used to means adapted to a highly refined, industrious, and intelligent community, to carry his notions of improvement to every foreign object which comes under his observation; and it is easier, and more gratifying, to apply these notions than to unlearn his knowledge, and bring back his ideas to a state applicable to a more primitive condition of society. This difficulty will operate strongly towards the failure of the numerous adventures now directed to the vast continent of the new world, and on the mining companies, in particular, it will operate still more forcibly: in the outset, an immense portion of their capital will be wasted in merely learning how they should conduct their operations to advantage, and in acquiring the necessary experience of the country. If this has been experienced by the persons who have lost their own capital in the trial, how much more certain must it happen to those who are exerting themselves with the capital of others, and who cannot feel the same interest in economising their resources as they would if the adventure were entirely their own, and superintended by themselves on the spot. It cannot be expected that the persons sent out from England, however competent to the practical discharge of their duties at home, will be equally so in the execution of their functions abroad, with the want of local experience and the necessary adaptation of new habits to a new and uncivilized people.

'I employed a number of the most intelligent English workmen, but I found, in every case, the greatest difficulty in managing them. Their efforts, their knowlege and art, most valuable at home, become useless among the Chilinos, and in the absence of their habitual resources.

'The agents to whom I have alluded will be surrounded with difficulties on every side, and be deceived in every possible way: it is not enough that they will be assisted by the advice of Englishmen who have been resident in the country, if those persons do not possess the requisite judgment to guide them; and this not one of them has. It is, indeed, incompatible with mercantile proceedings that a commercial agent should direct his attention to objects of research not connected with the concerns of the counting-house. I know, from experience, that many clerks, who have unfortunately manifested a disposition to matters not immediately relating to commerce, have lost their situations; of course there are exceptions to this rule, but it is beyond doubt generally the case. On my arrival in Chili I felt this acutely. I was surprised to find persons of considerable ability provokingly uninquisitive, and unconscious even of the existence of matters that had been incessantly under their observation. However distinguished for commercial knowledge, these deserving individuals are not those from whom may be expected any assistance in matters of speculative utility respecting the country, or any valuable statistic information. From the natives, the mining agents will have reason to be more on their guard: the smooth-faced exterior and plausible manners of the Chilenos, his apparent sincerity and generosity, will at first operate powerfully on a stranger, who has not yet ascertained his true character. I will repeat here what I have elsewhere said of them, that in treating with the best of them, as little confidence and as much caution are requisite as it is possible for one person to use with another.

'Another consideration, which will operate powerfully against the success of mining companies, is the absolute impossibility of employing any considerable capital in mining speculations, much less the immense sums contemplated in England. It will be seen from the modes adopted in the country how little capital is actually employed therein; and there is an evident relation between the scantiness of capital, and the scantiness of population. It is clearly deducible from the simplest principles of political economy, that the one cannot operate without the other, and any attempt to force capital into employments, so as to raise the demand for labor beyond what can be supplied, must raise wages, and lessen profits. This has been proved at the very outset in Mexico, where the suddenly increased demand for laborers has augmented the price of wages above ten-fold, and this advance will be increasing in proportion to the projected employment of workmen. It operates in all ways; the demand for labor at the mines takes away the agriculturist from his operations, and the demand for produce increases with the diminution of hands to produce it; the same in the demand for transport, for collecting materials, &c., would operate to an extent that could not have been contemplated in England. It is, however, not only certain that the capital proposed cannot be employed in mining operations, but it is no less certain that, whatever British capital is forced into mining speculations, will be unproductive, and that loss must take place to a considerable amount.' Since transcribing the above, it has been proved, by reference to positive experience, that the views entertained by our author are perfectly accurate, as in the whole of this immense district only one mine is really productive.

CHIL'IAD, *n. s.* From χιλιας. A thousand; a collection or sum containing a thousand.

We make cycles and periods of years, as decads, centuries, *chiliads*, for the use of computation in history. *Holder.*

CHILIA'EDRON, *n. s.* From χιλια. A figure of a thousand sides.

In a man, who speaks of a *chiliaedron*, or a body of a thousand sides, the idea of the figure may be very confused, though that of the number be very distinct. *Locke.*

CHILIAGON, in geometry, a regular plane figure of 1000 sides and angles. Though the imagination cannot form an idea of such a figure, yet it is asserted, we may have a notion of it in the mind, as we can easily demonstrate that the sum of all its angles is equal to 1996 right ones; for the internal angles of every plane figure are equal to twice as many right ones as the figure has sides, except those four which are about the centre of the figure, from whence it may be resolved into as many triangles as it has sides. The author of l' Art de Penser, p. 44, has brought this instance to show the distinction between imagination and conceiving.

CHILIARCHA, or CHILIARCHUS, in antiquity, an officer who had the command of 1000 men.

CHILIFA'CTIVE, *adj.* From chile. That which makes chile.

Whether this be not effected by some way of corrosion, rather than any proper digestion, *chilifactive* mutation, or alimental conversion. *Browne's Vulgar Errours.*

CHILIFA'CTORY, *adj.* From chile. That which has the quality of making chile.

We should rather rely upon a *chilifactory* menstruum, or digestive preparation drawn from species or individuals, whose stomachs peculiarly dissolve lapideous bodies. *Brown.*

CHILIFICATION, *n. s.* From chile. The act of making chile.

There is a fourfold order of concoction; mastication, or chewing in the mouth; *chylification* of this so chewed meat in the stomach; the third is in the liver, to turn this chylus into blood, called sanguification; the last is assimulation, which is in every part. *Burton's Anatomy of Melancholy.*

Nor will we affirm that iron is indigested in the stomach of the ostriche; but we suspect this effect to proceed not from any liquid reduction, or tendency to *chilification*, by the power of natural heat. *Browne's Vulgar Errours.*

CHILKA, a lake of the Deccan of Hindostan, on the sea-coast of the province of Cattack, on the north-west side of the bay of Bengal. It communicates with the sea, by a very narrow but deep opening, and is shallow within. It is forty miles long from north-east to south-west, and in general from twelve to fifteen feet wide; having many inhabited islands in it, and only a slip of land between it and the sea. It is bounded on the west by a part of that ridge of mountains which extend from the Mahanudy to the Godavery rivers, and shut up the Circars towards the continent. It is forty miles south-west of Cattack.

CHILL, *v. n., n. s., & adj.*
CHI'LLINESS, *n. s.*
CHI'LLY, *adj.*
CHI'LNESS, *n. s.*
} Goth. *kula*; Swed. *kyla*; Sax. cele. Shivering with cold; having the sensation of cold. Dull; not warm; repulsiveness of manner; cooling the warmth of affectionate approach. Metaphorically, unaffectionate; depressed; rejected; discouraged.

If you come out of the sun suddenly into a shade, there followeth a *chilness* or shivering in all the body. *Bacon.*

And all my plants I save from nightly ill,
Of noisome winds, and blasting vapours *chill*. *Milton.*

Oft as he in *chill* Esk or Seyn by night,
Hardened and cooled his limbs so soft, so white,
Among the reeds to be espyed by him
The nymphs would rustle, he would forward swim. *Marvell.*

Age has not yet
So shrunk my sinews, or so *chilled* my veins,
But conscious virtue in my breast remains.
Dryden.

I very well know one to have a sort of *chill* about his præcordia and head. *Derham's Physico-Theology.*

If the patient survives three days, the acuteness of the pain abates, and a *chilliness* or shivering affects the body. *Arbuthnot.*

Yet winter *chilled* her feet with cold, she pines,
And on her cheek the fading rose declines. *Gay.*

'Tis true yon oaks with yellow tops appear,
And *chilly* blasts appear. *Id.*

Alas, poor boy! the natural effect
Of love by absence *chilled* into respect. *Cowper.*

Vigour from toil, from trouble patience grows,
The weakly blossom, warm in summer bower,
Some tints of transient beauty may disclose,
But soon it withers in the *chilling* hour. *Beattie.*

Thus on the *chill* Lapponian's dreary land,
For many a long month lost in snow profound,
When Sol from Cancer sends the season bland,
And in their northern cave the storms are bound.
Id.

Upon his hand she laid her own,—
Light was the touch, but it thrilled to the bone,
And shot a *chillness* to his heart,
Which fixed him beyond the power to start.
Byron.

Chill—wet—and misty, round each stiffened limb
Refreshing earth—reviving all but him! *Id.*

CHILLAMBARAM, a town on the coast of the Carnatic, Hindostan, where there is a celebrated pagoda, held in great veneration. It is 1332 feet long by 936, and entered by a lofty gateway, under a stone pyramid 122 feet high. The stones are, many of them, above forty feet long, and five feet square, and covered with copper. In this pagoda Sir Eyre Coote made an unsuccessful attack on a garrison of Hyder Ali's. It is distant eight miles south of Porto-Novo, and 120 S. S. W. of Madras.

CHILLAN, a town and province of Chili, bounded on the north by Maule, on the east by the Andes, on the south by Huilquilemu, and on the west by the province of Itata It is sixty miles in length from east to west, and about thirty in breadth. It contains fine pasturage for sheep, the wool of which is much esteemed. The capital city contains about 400 houses, a parish church, and several convents. In 1751 it was overthrown by an earthquake, but rebuilt the following year.

CHILLINGWORTH (William), an eminent divine of the church of England, born and educated at Oxford, in the early part of the seventeenth century. He was an expert mathematician, an able divine, and a good poet. Study and conversation at the university turning upon the controversy between the church of England and that of Rome, Mr. Chillingworth left the former, and embraced the Romish religion. Dr. Laud, then bishop of London, hearing of this, wrote to Mr. Chillingworth, and a new enquiry at last determined him to return to his former faith. In 1634 he wrote a confutation of the arguments which induced him to go over to the church of Rome. His return to the church of England involved him in several disputes with those of the Romish persuasion. But in 1635 he engaged in a work, which gave him a better opportunity to confute the principles of the church of Rome, and to vindicate the Protestant religion, entitled, The Religion of Protestants a Safe Way to Salvation. Sir Thomas Coventry offering him preferment, he refused to accept it on account of his scruples about the subscription of the thirty-nine articles. However, he at last surmounted these; and was promoted to the chancellorship of Sarum, with the prebend of Brixworth. He was zealously attached to the royal party; and in August, 1653, was in the king's army at the siege of Gloucester, where he directed the making of certain engines for assaulting the town. Soon after, having accompanied Lord Hopton to Arundel Castle, he was taken prisoner by the parliamentary forces under Sir William Waller. But, being in a bad state of health, he obtained leave to be conveyed to the bishop's palace at Chichester, where he died in 1644. He left several excellent works.

CHILLIS, KHILLIS, or KLES, a town of Syria, at the foot of Mount Tauris, in the pachalic of Aleppo: having fifteen mosques, several large bazaars, and a noted mart for cotton. It has a resident aga, and is supposed to be an ancient place from the numerous coins found. Distant ten miles S. S. W. of Antab, and fifteen north of Aleppo.

CHILMINAR, the grandest piece of ancient architecture of which there are any relics extant, being the ruins of the famous palace of Persepolis, which was burnt by Alexander the Great, when intoxicated with wine, at the persuasion of the courtesan Thais. See PERSEPOLIS.

CHILO, one of the seven sages of Greece, and of the ephori of Sparta, the place of his birth, flourished about A. A. C. 556. He was accustomed to say, that there were three things very difficult, 'To keep a secret; to know best how to employ our time; and to suffer injuries without murmuring.' According to Pliny it was he who caused the sentence, Know thyself, to be written in letters of gold in the temple of Delphos. It is said that he died with joy, embracing his son, who had been crowned at the Olympic games.

CHILOE, a considerable island off the coast of Chili, giving name to an archipelego of islands in the neighbourhood. Their number has been variously stated, but is generally taken at forty-seven, of which this island, about forty leagues long from north to south, and from ten to thirteen broad, and thirty others, are inhabited.

The groupe appears to have been formed by some volcanic convulsions, and presents, generally, nothing but shapeless masses of rock, separated by narrow and dangerous channels. Most of them rise perpendicularly from the ocean, and are so thinly covered with soil, as to be incapable of growing their own food. The climate is damp and stormy. The winter is never sufficiently cold to permit the snow to lay on the ground, but this season is extremely wet, with heavy gales from N. N. E. and N. N. W.; southerly winds, on the contrary, are accompanied with fair weather. The traversia is a short storm from the east. Occasionally the Aurora Australis is seen here. In midsummer the heat is great, but it is moderated by sea breezes, which blow pretty regularly from ten to three o'clock.

The largest of these islands, besides Chiloe, are Achao, or Quinchao, and Lemui. None of the others are more than from one to three leagues in circumference. Of the villages on these islands, that of Calbuco is the most considerable, consisting of twenty straw houses, defended by a fort. The village of St. Maria of Achao has eighteen straw houses, of Spaniards. The others are of still less consequence. They raise wheat, oats, French beans, and potatoes. The fruits cultivated here are several varieties of the apple, and strawberries. The most common trees with which the hills are in general covered, are the cedar, oak, walnut, plumb, cypress, cinnamon, laurel, orange, the pelu, zenui, meter, and uneli. A kind of rattan grows spontaneously, of which the natives make their cordage, and which is also employed in roofing their habitations. The archipelago is said to have neither beast of prey nor venomous reptiles. Horses and cattle are not so numerous as on the opposite continents: the domestic animals are pigs and sheep, of which they have great numbers; and game and domestic fowls are abundant. The deer, otter, and a species of black fox, are found in a wild state.

Chiloe is separated from the continent on the north by the Boca de Chiloe, or Channel of Chacao, only one league wide at its entrance. On the south it has the Gulf of Chonos, and on the west, between it and the main, it forms several gulfs.

Its western coast is straight, having no indentation of any consequence, and only a few small rivers. The east coast which faces the continent is more irregular, and nearly in the middle forms a deep gulf. The island contains two towns, Chacao and St. Carlos, and thirty-eight villages, principally on the north and east sides, there being but one village on the west coast. The interior is so mountainous and barren, that it is almost entirely destitute of inhabitants.

Chacao, on the north-east end, was the principal part of the island until 1768, when the difficulty of the navigation caused it to be deserted for St. Carlos, on the Bahia de Reye, or north-west of the island, the access to which is safe. This is now the only port visited by the annual vessels from Peru. The city of San Carlos is the chief place, and contains about 200 wooden houses and some Indian huts. The town named St. Antonio de Chacao, consists only of the church, the missionary-house, and some Indian huts. Castro, on the east side of the island, has a good port, when it can be reached, but the difficulty of the navigation seldom permits it to be visited.

This archipelago was discovered by Don Garcia de Mendoza, governor of Chili, in 1558. In 1565 Martino Ruiz Gamboa was sent here with only sixty men, with which he subjected the inhabitants, who are said to have amounted to the number of 70,000, and founded the city of Castro and the port of Chacao. The present population amounts, perhaps, to 11,000 native Indians, and an equal number of Spaniards, or families of Spanish descent. The former are remarkably docile, and ingenious; expert in all the handicraft trades, and some of the best sailors in South America. In their frail barks, which are made only of a few planks sewed together and caulked with moss, they will undertake voyages to Conception. The commerce of these islands is principally carried on by a few vessels from Peru and Chili, which exchange wine, brandy, tobacco, sugar, Paraguay tea, salt and European goods, for cedar and other timber, hams, dried and salt fish, toys, ambergris, and a sort of cloak manufactured here.

CHILPANZINGO, or CHILPANTZINGO, a town of Mexico, on the great road from Mexico to Acapulco, in the fertile plains of the Andes. It is built 2527 feet above the level of the sea, and is 150 miles north of Mexico.

CHILTERN, a chain of chalky hills, forming the southern part of Buckinghamshire, the northern part of the county being distinguished by the name of the Vale. The air on these heights is extremely healthful: the soil, though stony, produces good crops of wheat and barley; and in many places it is covered with thick woods, among which are great quantities of beech. Chiltern is also applied to the hilly parts of Berkshire, and it is believed has the same meaning in some other countries. Hence the hundreds lying in those parts are called the Chiltern Hundreds.

CHILTERN HUNDREDS, STEWARDS OF THE. Of the Hundreds into which many of the English counties were divided by king Alfred for their better government, the jurisdiction was originally vested in peculiar courts; but came afterwards to be devolved to the county courts, and so remains at present; except with regard to some, as the chilterns, which have been by privilege annexed to the crown. These having still their own courts, a steward of those courts is appointed by the chancellor of the Exchequer, with a salary of twenty shillings and all fees, &c. belonging to the office. This is made a matter of convenience to the minister when he wishes to accomplish the removal of any of the members of the House of Commons. He is made to accept the stewardship of the Chiltern Hundreds, which vacates his seat.

CHIMÆRA, a barren territory of European Turkey, in the province of Albania. It comprehends a chain of mountains, which divide Epirus from Thessaly; the inhabitants of which are partly independent and partly subject to the Turks.

CHIMARA, a port town of the above territory, seated on a rock at the entrance of the Gulf of Venice, about twenty-nine miles north of Corfu.

CHIMÆRA, in fabulous history, a monster, sprung from Echidna and Typhon. It had three heads; that of a lion, a goat, and a dragon; and continually vomited flames. The fore parts of its body were those of a lion, the middle was that of a goat, and the hinder parts were those of a dragon. It inhabited Lycia, in the reign of Jobates, by whose order Bellerophon, mounted on the horse Pegasus, overcame it. See BELLEROPHON. This fable is thus explained:—There was a burning mountain in Lycia, whose top was the resort of lions; the middle, which was fruitful, was covered with goats; and at the bottom the marshy ground abounded with serpents. Bellerophon destroyed the wild beasts on that mountain, and rendered it habitable. Plutarch explains the fable to mean the captain of some pirates, who adorned their ship with the images of a lion, a goat, and a dragon. From the union of the Chimæra with Orthos, sprung the Sphynx and the lion of Nemæa.

CHIMB, *n. s.* Dut. *kime*; the end of a barrel or tub.

> For sikerly whan I was borne, anon
> Deth drow the tappe of lif, and let it gon;
> And ever sith, hath so the tappe yronne,
> Till that almost all empty is the tonne.
> The streme of lif now droppeth on the *chimbe*.
> *Chaucer.*

CHIMBO, a town and district of South America, in the province of Quito, and jurisdiction of Riobamba. The town contains about 2000 inhabitants, and the whole is a cold district, lying very near the mountainous desert of Chimborazo.

CHIMBORAZO, a mountain of South America, the most celebrated of the Andes, and once supposed to be the highest in the world; being 21,440 feet above the level of the sea. Of this more than 2000 feet from the summit is constantly covered with ice and snow, though it lies almost under the line, in lat. 1° 41′ 40″ S. In 1745 this celebrated mountain was ascended by M. Condamine and a company of French academicians, with a view to the measurement of a degree; and in 1797, on the 23rd of June, Humboldt ascended it 3485 feet higher than the academicians, or to the altitude of 19,300 feet above the level of the sea. Here he was stopped in his progress by an immense fissure in the mountain; and the tenacity and sharpness of the air was so great that the blood started from his lips and various parts of his face: the fog was also very thick. He calculated the summit of the mountain to be 2140 feet above this spot.

CHIME, *v. a.*, *v. n.* & *n.* The original of this word is doubtful. Junius and Minsheu suppose it corrupted from cimbal; Skinner from gamme, or gamut; Henshaw from chiamare, to call, because the chime calls to church. Perhaps it is only softened from chirme, or churm, an old word for the sound of many voices, or instruments making a noise together. The consonant or harmonic sound of many correspondent instruments; the correspondence of sound; the correspondence of proportioned relation; the agreement either of sounds or syllables, which produce harmony; applied especially to the striking of bells, to mark the divisions of the hours. Metaphorically, to suit with, to agree, to fall in with.

> The sely tongue may wel ringe and *chimbe*
> Of wretchednesse, that passed is ful yore
> With olde folk, save dotage is no more. *Chaucer.*

> We have heard the *chimes* at midnight.
> *Shakspeare.*

> The sound
> Of instruments, that made melodious *chime*,
> Was heard, of harp and organ.
> *Milton. Paradise Lost.*

> Love virtue, she alone is free;
> She can teach you how to climb
> Higher than the sphery *chime*. *Milton.*

> Thus sing they in the English boat,
> An holy in a chearful note,
> And all the way, to guide their *chime*,
> With falling oars they kept the time.
> *Marvell.*

> Love first invented verse, and formed the rhime,
> The motiön measured, harmonized the *chime*.
> *Dryden.*

> With lifted arms they order every blow,
> And *chime* their sounding hammers in a row;
> With laboured anvils Ætna groans below.
> *Dryden's Georgicks.*

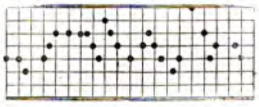
Any sect, whose reasonings, interpretation, and language, I have been used to, will, of course, make all *chime* that way; and make an author, and perhaps the genuine meaning of the author, seem harsh, strange, and uncouth to me. *Locke.*

Father and son, husband and wife, and such other correlative terms, do belong one to another; and, through custom, do readily *chime*, and answer one another, in people's memories. *Id.*

He not only sat quietly and heard his father railed at, but often *chimed* in with the discourse.
Arbuthnot's History of John Bull.

Chimes. To calculate the numbers for the chimes of a clock, and adapt the chime barrel, it must be observed, that the barrel must turn round in the same time that the tune it is to play requires in singing. The chime-barrel may be made up of certain bars that run athwart it, with a convenient number of holes punched in them to put in the pins that are to draw each hammer: and these pins, in order to play the time of the tune rightly, must stand upright or hang down from the bar, some more, some less. In placing the pins, proceed by the way of changes on bells, viz. 1, 2, 3, 4; or rather make use of the musical notes. Observe what is the compass of the tune, and divide the barrel accordingly from end to end. Thus, for example, the 100th Psalm tune is eight notes in compass, and accordingly the barrel is divided into eight parts.

Table for dividing the Chime Barrel of the 100th Psalm.



These divisions are struck round the barrel; opposite to which are the hammer tails. We have here supposed only one hammer to each bell; but when two notes of the same sound come together in a tune, there must be two hammers to the bell to strike it. Then it must be divided round about into as many divisions as there are musical bars, semibreves, minims, &c. in the tune. Thus, the 100th Psalm tune has twenty semibreves, and each division of it is a semibreve; the first note of it also is a semibreve; and, therefore, on the chime-barrel must be a whole division, from five to five; as any one may understand plainly, if he conceives the surface chime-barrel to be represented by the above figures, as if the cylindrical superficies of the barrel were stretched out at length, or extended on a plane: and then such a table, so divided, if it were to be wrapped round the barrel, would show the places where all the pins are to stand in the barrel; for the dots running about the table are the places of the pins that play the tune. Indeed, if the chimes are to be complete there ought to be a set of bells to the gamut notes; so that each bell having the true sound of *sol*, *la*, *mi*, *fa*, any tune may be played with its flats and sharps; nay both the bass and treble may thus be played with one barrel: and by setting the names of the bells at the head of any tune, that tune may easily be transferred to the chime-barrel, without any skill in music.

CHIME'RA, *n. s.*
CHIME'RICAL, *adj.*
CHIME'RICALLY, *adv.*
Lat. *chimæra*; a vain and wild fancy, as remote from reality as the existence of the poetical chimera, a monster feigned to have the head of a lion, the belly of a goat, and the tail of a dragon. Imaginary; fanciful, wildly, vainly, or fantastically conceived; fantastic.

In short, the force of dreams is of a piece,
Chimeras all, and more absurd, or less.
Dryden's Fables.

No body joins the voice of a sheep with the shape of a horse, to be the complex ideas of any real substances, unless he has a mind to fill his head with *chimeras*, and his discourse with unintelligible words. *Locke.*

Notwithstanding the fineness of this allegory may atone for it in some measure, I cannot think that persons of such a *chimerical* existence are proper actors in an epic poem. *Spectator.*

Accustomed to indulge every *chimera* in politics, every frenzy in religion, the soldiers knew little of the subordination of citizens, and had only learned, from apparent necessity, some maxims of military obedience. *Hume's History of England.*

CHI'MINAGE, *n. s.* From chimin, an old law word for a road. A toll for passage through a forest.

CHI'MNEY, *n. s.*
CHI'MNEY-CORNER, *n. s.*
CHI'MNEY-PIECE, *n. s.*
CHI'MNEY-SWEEPER, *n. s.*
Καμινος from καιω, to burn. Lat. *caminus*; Fr. *cheminée*. A fireplace; a passage for smoke. The subjoined nouns, in composition, bespeak at once their specific relation to these etymons. Chimney-sweeper is not only used for a cleanser of chimneys from soot, but for any one of mean and vile occupation.

Quoth Pandarus: 'For aught I can aspien,
This light, nor I, ne serven here of naught;
Light is not gode for sike folkis eyen.
But for the love of God, sens ye ben brought
In this gode plite, let now non hevy thought
Ben hanged in the hertis of you twey.'
And bare the candle towardes the *chimney*.
Chaucer.

It was a vaut [kitchen] ybuilt for great dispense,
With many raunges reared along the wall,
And one great *chimney*, whose long tonnel thence
The smoke forth threw. *Spenser.*

The *chimney*
Is south the chamber; and the *chimney-piece*,
Chaste Dian bathing. *Shakspeare.*

To look like her, are *chimney-sweepers* black;
And since her time are colliers counted *bright*. *Id.*

The fire which the Chaldeans worshipped for a god, is crept into every man's *chimney*. *Raleigh's History.*

Yet some old men
Tell stories of you in their *chimney-corner*.
Denham.

Let me thy properties explain,
A rotten cabin dropping rain;
Chimnies with scorn rejecting smoke,
Stools, tables, chairs, and bedsteads broke.
Swift.

Polish and brighten the marble hearths and *chimney-pieces* with a clout dipt in grease. *Id.*

But, ah, I fear thy little fancy roves
On little females, and on little loves;
Thy pigmy children, and thy tiny spouse,
The baby play things that adorn thy house,
Doors, windows, *chimnies*, and the spacious rooms,
Equal in size to cells of honeycombs. *Gay.*

CHIMNEY, the passage through which the smoke is conducted from the fire-place. They are generally supposed to be a modern invention, as the ancients used braziers and stoves. The first creditable account of chimneys is that of De Gataris, 1405, who states them to have been brought to Rome from Padua, by F. de Carrara, who caused them to be constructed at the hotel where he lodged. But it is certain that the ancients had chimneys to convey the smoke from those manufactories that required the aid of fire, and also from the hypocaustum of their houses and baths. In Italy and Spain chimneys are now rarely to be met with, and in Germany the stove is preferred. For the best method of constructing chimneys, see ARCHITECTURE.

CHIN, *n. s.* Sax. cinne; Germ. *kinn*. The part of the face beneath the under lip.

Her face white and well coloured;
With little mouthe, and round to se
A cloven *chinne* eke had she. *Chaucer.*

Her *chin*, like to a stone in gold inchased,
Seemed a fair jewell wrought with cunning hand,
And, being double, doubly the face graced.
Spenser. Britain's Ida.

But all the words I could get of her, was wrying her waist, and thrusting out her *chin*. *Sidney.*

He raised his hardy head, which sunk again,
And, sinking on his bosom, knocked his *chin*.
Dryden.

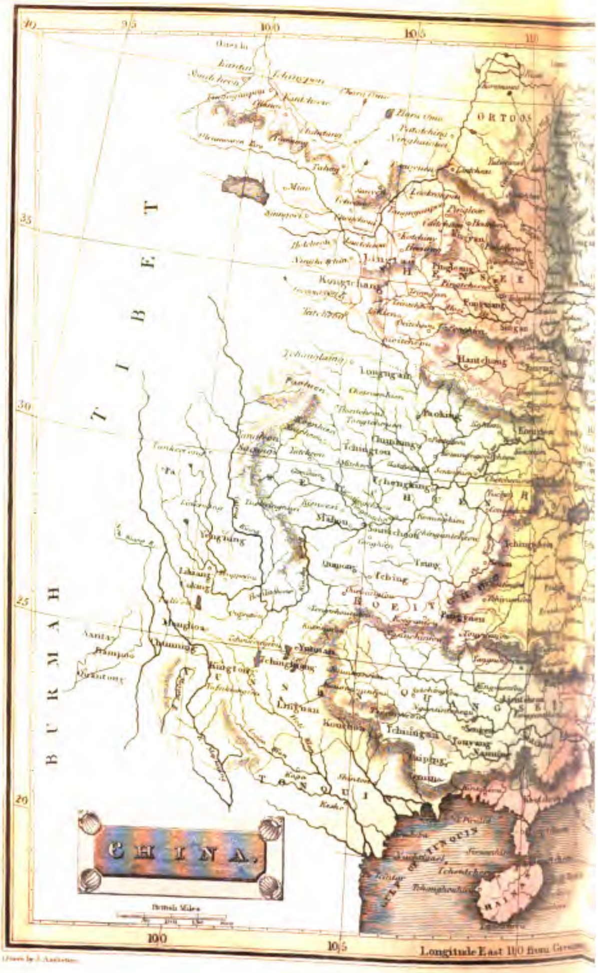
Smooth o'er our *chin* her easy fingers move,
Soft as when Venus stroaked the beard of Jove.
Gay.

He shews on holidays, a sacred pin
That touched the ruff that touched queen Bess's *chin*.
Young's Love of Fame.

CHI'NA, *n. s.* From China, the country where it is made. China ware; porcelain; a species of vessels made in China, dimly transparent, partaking of the qualities of earth and glass. They are made by mingling two kinds of earth, of which one easily vitrifies; the other resists a very strong heat; when the vitrifiable earth is melted into glass, they are completely burnt.

Spleen, vapours, or small pox, above them all;
And mistress of herself, though *china* fall. *Pope.*

After supper, carry your plate and *china* together in the same basket *Swift.*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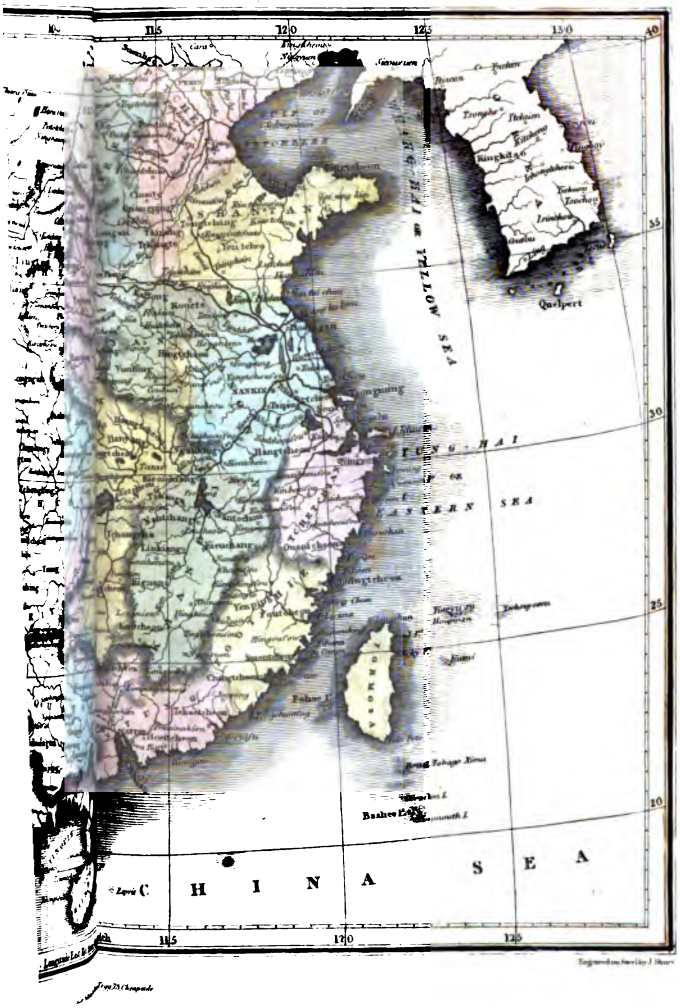

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C H I N A.

China, Proper, the principal part of the large empire of that name, is situated on the south-eastern side of Asia, extending from the twentieth to the forty-first degree of north latitude; and from the 101st to the 122nd degree of east longitude, being on the medium about 1450 miles long from north to south, and nearly 1300 broad from west to east. It is bounded on the north by Mongolia, and Mantchoo Tartary; on the east by the Whang Hai, or Yellow Sea, and the Tung Hai or Eastern Sea, both connected with the Pacific Ocean; on the south by the China Sea, and Tongking; and on the west by the Birman Empire, and Thibet. China has been reckoned to contain an area of 1,300,000 square miles.

Its population has been a matter of much conjecture, and various accounts have been given on the subject, both by the Jesuits and more modern writers. Sir George Staunton, in his Account of Lord Macartney's Embassy, has stated it, on the authority of a mandarin of high rank, at 333,000,000 on the southern side of the Great Wall; but this account is given too much in round numbers, and in some instances with too much similarity in the population of the respective provinces, to be entirely trusted as correct. Mr. Ellis, a more modern traveller, who attended the embassy of Lord Amherst, and had superior opportunities of observation, is disposed to rate the population much lower. He observes very justly that it cannot exceed a due proportion to the land under cultivation, and that much land capable of tillage is neglected. He has been informed, he says, that the most accurate accounts (referring most probably to those of Dr. Morrison, who has resided many years at Canton), state its amount considerably below 200,000,000. It appears that a statistical account was taken by order of the late emperor Kia-king, which makes the total population, including the Tartar-banners, to be about 145,000,000. There is reason, however, to think that this census is drawn up in a very imperfect manner. We find that in 1743 that taken by order of Kien-lung, gives it at 142,000,000; that in 1760, at 196,837,977; and again in 1761 at 198,214,553, making an annual increase of nearly a million and a half. Perhaps Dr. Morrison's statement may be assumed as the most probable one, when he fixes the population at about 150,000,000, allowing 120 persons to each square mile, a greater proportion than prevails in many other parts of the world. But of this we shall say more when we come to speak of the provinces.

Whether this population is aboriginal, or derived from other countries, is very uncertain. In features the Chinese greatly resemble the Mongols, Mandshurs, and other Tartar tribes, which probably arises from the intermixture of the latter with the original inhabitants. Perhaps no people have undergone so many revolutions as the Chinese;—they have been conquered, and have delivered themselves, and the country has undergone many changes in regard to its divisions; but they have still preserved their identity. From the affinity between the customs and manners of the Chinese and northern Scythians, as Herodotus describes them, as well as their antipathy to change, it is highly probable that China was first peopled by those wandering tribes.

The present name of this country appears to owe its origin to the dynasty of Tsin, whose founder, about 300 years before Christ, after subduing the revolted provinces and annexing them to the empire, gave it the appellation of his own family. The most ancient name, and which is indeed still used, is Tien-sha, Under-heaven; implying that it is inferior only to heaven. The natives call it Tchungquo, or Chung-kwo, the middle kingdom, arising, say some, from the notion that the earth is flat, and that China is situated in the middle; others affirm, that when the emperor Tchingwang established his court at Lo-yand, and gave it this name, which was afterwards used for the whole country.

From the great extent of latitude occupied by China, the climate must necessarily be very various. In the southern parts the tropical heat is experienced; but near the coast this is much tempered by the monsoons and sea breeze, while in the north the cold for two or three months is extremely severe. The snow is constantly on the ground, and the thermometer is often below 20° at night, and beneath the freezing point all the day. All the intermediate degrees of temperature prevail in the middle parts of the country. The air of the northern seas is excessively moist, often welling like rain. In the most southerly regions the heat, especially at mid-day, exceeds that of Bengal; at that time all business is abandoned, and perfect silence reigns. Hurricanes are often experienced at the equinoxes; but at other times the sky is clear, the air moist, and the vegetation beautifully exuberant. The soil differs as much as the climate, consisting of every variety, from the remains of primitive rock to the matter of decayed vegetables. In the low districts it is alluvial, and quite free from stones; in other parts it is gravelly or rocky, and clay of extremely fine quality is found in some provinces.

The general face of this country is flat, occasionally varied with upland scenery; being in few places mountainous, except towards Tartary and in some parts of the south. On this subject Mr. Ellis says, 'A range of mountains was visible at sun-rise in the south-east, and the eyes of all were turned to them with the same degree of interest, as to high land after a sea voyage; indeed, what with uniformity of objects, and of level, the country since we left Tong-chow (about 550 miles) was as little interesting as the expanse of blue water.' A range of mountains in latitude about 32° runs from the 115th degree of longitude to the western boundaries of the empire, where it meets another, which extends southward to the Birman territory and Tongking; the most level parts lie on the north and east. The most elevated ridges are those on the side of Tartary, which gradually rise till their summits are lost in the table land of central Asia.

China is watered by numerous rivers, some of them large, and extending beyond its confines. The table land before mentioned, and the east Himalayan chain of mountains that rise out of it, cause the accumulation of a multitude of streams, that, descending from the eastern sides of these heights, swell into noble rivers, receiving an accession of innumerable small branches in their course through China, and finally empty themselves into the China and Yellow Seas. Of these the most considerable are the Hoang-ho, and the Kiang-keou; almost all the minor streams falling into them. The Kiang-keou or Yangtse-kiang, meaning the Son of the Sea, has been the admiration of all travellers, for its extensive course and amazing width. It rises in the unexplored parts of northern Thibet, first running south-east, and then south, till it passes the frontiers of China Proper, in about 28° north latitude, when it takes a direction due east for about seventy miles; then flowing due south to the borders of the province of Yunnan, it winds eastward, and then directly to the north for nearly 150 miles, when it turns short to the E. N. E. which direction it retains throughout the remainder of its course, watering all the central provinces, till it falls into the sea by many mouths, nearly 140 miles below Nankin. It flows through a beautiful country, thronged with people, the scenery of which is varied by woody mountains, frequently crowned with temples, and presenting a most picturesque aspect. The embassy under Lord Amherst, on its return from China, pursued the course of this river for nearly 300 miles, and the breadth of the whole course was at least two miles on the average. Numerous large and fertile islands are situated on it, and the climate of the districts through which it passes is delightful. Its entire course exceeds 2200 miles, and it receives many tributary streams, equalling, if not surpassing, the Thames in magnitude and importance.

The Hoang-ho, or Yellow River, also rises in the Tartarian mountains, not far from the source of the Yangtse. After approaching very near to each other, they separate to the distance of more than 1000 miles. The former making many windings to the north-east, near the boundaries of China and Tartary, sweeps far into the latter country, forming the northern limit of the province of Ortous, then running due south, it passes through the great wall below the 40th degree of latitude and the 111th of longitude. It continues to flow in this direction for more than 300 miles, when it turns towards the Yellow Sea, into which it disembogues itself, after a course of more than 2000 miles. Many minor streams, some of them of considerable magnitude, fall into this river, which is so swelled at times by them, that in many parts banks are raised to prevent its overflowing the surrounding country. Besides these there are several other independent rivers, as the Pei-ho, which passes by Pekin, and flows into the gulf of Pee-scheelee; the Ta-schin-ho, which falls into the same gulf on the south side, and *the* Kang-kiang, which enters the sea near Canton, furnishing a ready access from that city to the interior.

It will be observed, that most of the above rivers cross the country from west to east; a grand communication was therefore necessary from north to south, and this has been effected by canals, with which this country is abundantly furnished. The grand canal, extending from Pekin to the Yangtse-kiang was commenced, it is said, in the tenth century, and 30,000 men, it is asserted, were employed forty-three years in its construction. It is generally led along the beds of rivers, sometimes conducting them to their junction with some other stream, and following a very winding course. There are no locks, and when flood-gates are required to check the current at a descent, they are formed simply of thick planks, let down into grooves cut in projections of stone, which also serve as abutments for slight wooden bridges, which are easily removed when vessels pass. Its whole length is about 500 miles; but though a considerable work, Mr. Abel thinks *it has* been overrated as a specimen of art and labor; it is, however, of great importance to the empire, forming the line of communication between its northern and southern provinces, and serving as a sluice to drain the lakes and marshes, and carry off the overflowings of the great Yellow River. After passing this river, it is continued to the Yangtse-kiang, which, by means of its tributary streams, carries the navigation to the foot of the mountains that form the northern boundary of the province of Canton, across which ridge goods are conveyed by one day's land carriage, till the navigation is again opened and continued to the city of Canton. A number of smaller canals, joining most of the principal rivers, intersect the country in various directions; but as they are mostly cut through level districts, and an alluvial soil, there are none of those difficulties in the construction which are experienced in many parts of this country.

Numerous and extensive lakes are found in different parts of China; but most of them connected with the Yangtse or its tributary branches. The best known of them is Poyang, situated near the southern winding of the Great River, about the thirtieth degree of latitude. It is embosomed in mountainous and highly picturesque scenery, and so covered with islands that little of the water can be seen at one time. Mr. Ellis states that the Embassy sailed about sixty miles on this lake, but it is not wide in proportion to its length, and it appears to form two branches. Violent storms sometimes render the navigation dangerous. The Tung-sing lake, in the same latitude, but about 250 miles more westward, is said to be much larger, not less than 200 miles in its greatest extent. North of Nankin, also, there are two considerable lakes near the part of the country where the two great rivers approach each other. The name of the province in which the great lake is situated, Hou-quang, implies the country of lakes; and it contains a great number, but generally small.

The coast of this empire is very extensive, being perhaps, not less than 1400 miles from the north of the Wanghai to the gulf of Tonquin. It contains many indentations, and probably a number of convenient harbours, though most of them are unknown to Europeans. The most considerable is at the island of Emouy or Amoy, on the coast of Fokien, capable of containing 1000 vessels. Its principal bays, or gulfs, are those of Petche-lee on the north, and that of Ta or Canton on the south. The former is very extensive, and lies on the south side of the Whang Hai; on the north of this gulf, the Pei-ho discharges its waters over a bar, on which the depth at low water is only three or four feet, and the rise of the tide is but five or six feet. The latter is situated to the south of Canton, containing a cluster of numerous islands, and receiving the waters of the great river Hoan-kiang or Ta, which rises in the province of Yun-nan, and runs a course of 800 miles. Here the Ladrone islands, about ten in number, and those of Lema, form a chain almost in a semi-circle before the bay; on the largest of the Ladrones is a lofty summit, with a dome that is seen at thirty miles distant. Most of these islands are rocky and barren; but they afford water, and Chinese fishermen generally take up their residence in them. The large islands of Hainan on the south of Quantang, and Tai-ouan, or Formosa, west of Fokien, are also included in China proper. See articles HAINAN and FORMOSA.

China is most commonly divided into fifteen provinces, some of which being double, they are often reckoned as eighteen. Of these, four are situated in the north, seven in the middle, and four in the south. The following list is taken from the survey made by order of the Chinese legislature, and made public in the year 1813.

Provinces.	Number of individuals.	Number of families.	Provinces.	Number of individuals.	Number of families.
Chihle	27,990,871		Brought forward .	349,659,952	
Shuntung	28,958,764		Kwangse	7,313,865	
Shanse	14,004,210		Yunnan	5,561,320	
Honan	23,037,171		Kweichow	5,288,219	
Keangsoo	37,843,501		Shing-King, Leaou-tung	942,003	
Ganhwuy	34,168,059		Kirin	307,781	
Keangse	30,426,999		Hihlung-keang, or Tei-tcihar		2,398
Fuhkeen	14,777,410		Tsinghæ, or Kokonor .		7,842
Formosa (Natives) .	1,748		Foreign tribes under Kansuh		26,728
Chekeang	26,256,784		Foreign tribes under Szechuen		72,374
Hoopih	27,370,089		Thibetan colonies . .		4,889
Hoonan	18,652,507		Ele and its dependencies		69,644
Shense	10,207,256		Turfan and Lobnor .		2,551
Kansuh	15,193,125		Russian border . . .		1,900
Barkoul and Oroumtsi	161,750				
Szechuen	21,435,678				
Kwangtung or Canton	19,174,030				
	349,659,952		Total	369,073,140	188,326

Though this may appear an enormous population, the proportion does not exceed 256 persons to the square mile, which would show China to be only peopled in proportion to England as three to two. When the nature of the climate, the variety and abundance of the productions, the proportionately small quantity of food consumed by the Chinese, and the few animals that they keep for pleasure, are taken into consideration, it has been thought not incredible that it should support a population equal to the above. The inhabitants are very unequally spread over the country; in some parts they are crowded to excess, while others wear the appearance of a desert.

The principal cities of the empire are Pekin, Nankin, and Canton. Pekin, the metropolis, and the residence of the emperor, is situated in the northern part of the province of Pe-che-lee, within view of the lofty blue mountains of Tartary, in lat. 39° 50′ N., and E. long. 116° 30′. It is surrounded with high walls flanked with many bastions and towers, the outer parts of which are built with bluish sun-baked bricks on a foundation of granite; the middle is filled with earth. These walls are thirty feet high, and twenty-five feet thick at the bottom, sloping towards the top; the towers are about seventy yards, or the distance of a bow shot, from each other. The city consists of two parts, the Lan-ching, or old city, inhabited chiefly by Chinese; and the Sin-ching, or new city, where the Tartars chiefly reside. It is about eighteen miles in circumference, without including the suburbs. According to lord Macartney's information, Pekin contains about three millions of inhabitants, but this population is certainly not at all proportioned to its size, especially as the houses are low, most of them not above one story from the ground; but the Chinese crowd into a small compass, two or three generations frequently occupying a hut, that in England would scarcely be thought sufficient for the poorest family.

The city has two great streets, running through its whole extent, crossing one another, and dividing it into quarters; these are said to be 120 feet broad, and bordered with shops, but the houses are low and make a mean appearance. The rest of the streets are very narrow, most of them being mere lanes. The shops are painted and gilt in great profusion, and the goods are not only displayed within, but piled up in the streets before them; and every shop-keeper has a painted board before his door, inscribed with three large characters, which he has chosen for his sign, and often with a list of the articles he sells under them, the characters pou-hou, no cheating here, being very conspicuous. Many trades are likewise carried on in the streets, so that little space is generally left in the widest of them, and this often occupied by processions of men in office, or long trains of attendants on marriages and funerals. The noise arising from the buyers and sellers, mixed with that of jugglers, conjurers, fortune-tellers, quack doctors, mountebanks, comedians, and musicians, is very discordant and frequently annoying. Among the crowd too it is no uncommon thing to behold Tartar females, riding astride, and displaying that art in managing their horses, for which that nation is so famous. A number of triumphal arches, consisting of one large gateway in the centre, with a smaller one on each side, adorn various parts of the capital; and every art is employed in gilding, varnishing, and painting, to make them brilliant. They have large gold inscriptions, displaying the names of the individuals to whose memory they have been erected, or the remarkable occasion they were designed to record. Temples and pagodas distinguish this, as well as all other cities in China. The emperor's palace stands in a domain, surrounded by a quadrangular wall, about a mile in length, by three quarters in breadth, within which, Chinese art seems to have exhausted its powers, in the creation of mountains, rocks, ravines, woods, rivers, lakes, and islands, rapidly succeeding each other. The emperor's residences are erected on hills of various elevation, while pavilions, kiosks, and other buildings for pleasure and refreshment, are raised on the loftiest summits. At a little distance from the city he has another palace, at Yuen-Ming-Yuen, the grounds around which are laid out in a similar manner, but they are far more extensive. The area of this royal demesne, it is said, exceeds ninety square miles, and includes no less than thirty residences, with every thing necessary to them. Most of them, however, would be very mean if they were divested of their gilding. The handsomest building is the hall of audience, 110 feet long, forty-two broad, and twenty high.

The second city in importance is Nankin, called by the Chinese, Kiang-ning-fou; it was indeed formerly the capital. It was once very extensive, the walls, it is said, being more than forty miles round. Mr Ellis, who had an opportunity of viewing it from an elevation within the walls, describes it as appearing to have been encompassed with three walls, one within another, the outer and inner one being in some tolerable state of preservation, but of the middle no trace was remaining but a single archway. The present inhabited parts of the city are at some distance within the outer gate, and the intervening space has scattered houses, hills, groves, and cultivated spots of every description. The city lies in about 32° N. lat. and 118° 30′ E. long. Like Pekin it has four large streets crossing each other, and a number of smaller ones running at right angles with them. The larger streets are very clean, though not remarkably broad; a canal appeared to flow through one of them, over which several bridges of a single arch are thrown. The great porcelain tower rises conspicuously among all the other buildings; it is an octagon 200 feet in height, constructed on a strong brick foundation, and encompassed by a flight of twelve steps leading to the entrance. It consists of nine stories equal in height, though diminishing in breadth as they ascend, the lowest being 120 feet in circumference, or fifteen for each side of the octagon. The outside is covered with porcelain slabs, and each story has a projecting roof, covered with highly varnished green tiles. [illegible] steps in the interior lead up to the different compartments, which are filled with gilt idols fixed against the walls in different niches. This tower is said to have been commenced early in the fourteenth century, in the reign of Yang-lo, and to have been finished in nineteen years, at an expense equal to £800,000. It has the appearance of having suffered by a stroke of lightning, which the Chinese attribute to a conflict of the god of thunder with demons; in pursuing them to the pagoda, they say, he injured the building. Nankin is reported to have been once more populous than Pekin is at the present time. It was the residence of the emperor, the seat of the six great courts of justice, and the mart of the whole empire. Now, however, its ancient splendor is greatly obscured, and though it is favorably situated on the south side of the great river Yangtse-Kiang, which still furnishes an intercourse with all the interior, the communication with the sea seems from some unknown cause to have ceased. This city has long been celebrated for the manufacture of the cotton article, so well known amongst us by its name.

Canton is the most considerable port in the empire, and indeed the only mart for European trade. It stands on the river Pekiang, in the province of Quantong, of which it is the capital, in lat. 23° 10′ N. and long. 112° 45′ E. The wall is nearly five miles in circumference, but the suburbs extend far beyond. It has several gates, and on the side next the land three forts, and some cannon mounted on the walls. All foreigners are excluded from it, and scarcely any thing is to be seen in the neighbourhood but the high wall. The streets are long and straight, but few of them exceed fifteen or twenty feet in width. Along the banks of the river are situated the factories of the different nations with which trade is allowed; the British surpassing all the others in size, elegance, and accommodations. Though the streets are frequently crowded to excess, few women except of the lowest class are seen in them. Great numbers of the people live in vessels on the river. The principal buildings in this city are the great pagoda and many other temples, full of the images of their idols, and the triumphal arches. The markets for all kinds of provision are plentifully supplied, and at a cheap rate. The population of this city is said to be not much inferior to that of Nankin or Pekin, but this seems hardly probable, if the area within the walls be considered as any standard; though the number may be greatly increased by the multitudes that live on the water, and the influx that is occasioned by the commerce of the place as the only free port for foreigners in the empire.

On account of the prevailing restrictions on foreign intercourse, it is impossible to give any correct account of other cities and towns in China. They are very numerous, there being, it is said, not fewer than 4400 walled towns, many of them declared to be large, and rivalling Pekin itself, but in these assertions no confidence can be placed. These towns are divided by the Chinese into two classes, distinguished by names indicative of the rank they hold, and as being of the first, second, and third order. The frontiers of this extensive empire, forming a line of not less than 10,000 miles, are guarded with such scrupulous attention, that no Russian, Turcoman, Affghan, Hindoo, Birman, or Tonquinese, on the land side, nor a single European or American, of the great numbers that trade annually at Canton, has ever been able to pass the barriers, without being discovered; so that for this reason our ideas of the topography of the interior, are very indistinct. In this respect the moderns have added little to the information already given by the Catholic missionaries, who were allowed to reside in the country.

The immense population of China renders agriculture of very great importance, and much has been said of the extreme state of cultivation which the country exhibits. Sir George Staunton says, the hills and mountains that afford any slight inclination are cut into terraces one above another, supported by mounds of stone, and thus the whole surface is frequently cultivated to the summit. These stages produce abundance of pulse, grain, yams, sweet potatoes, onions, carrots, turnips, and various other plants. On the tops of the mountains are reservoirs of water, from which by different channels it is conveyed to the terraces on the side. In the more rugged and barren parts the camellia sesanque, and different firs, especially the larch, are planted. It is a point of great importance to collect and preserve manure; and all decayed substances, both of animals and vegetables, are used for this purpose. Mr. Abel, however, observed many hills wholly uncultivated, and large plots of ground the cultivation of which was quite neglected. These, and extensive marshes, in which no trace of husbandry could be seen, at least show that the Chinese are not very well skilled in the improvement of land. They have no fallows. Their husbandry is neat and their implements simple; the plough is without a coulter and has but one handle; the harrow is much finer than what is used in England, and the soil is therefore more pulverised. The southern provinces produce great quantities of rice, and grain of all kinds is raised in the north. The castor-oil plant is much cultivated, and used as a common vegetable in some parts.

The choicest vegetables are the Petsai and the tea-plant. The former is a national plant, and is consumed in such immense quantities, especially in Pekin, that some authors say, that during the months of October and November the gates of the city are from morning to night thronged with carts laden with it. It is to the Chinese what the potatoe is to the Irish; it is prized by all ranks, and they spare no pains in its cultivation. In its raw state it is something like a lettuce, and when boiled has the taste of asparagus; they preserve it for the winter in salt and vinegar, or by planting it in wet sand, or burying it deep in the earth, after it has been previously dried in the sun.

Tea is a great article of cultivation; it is principally raised between the twenty-seventh and thirty-first degrees of latitude, and on the sides of very elevated mountains. The soil that suits it is dry and gravelly, frequently of decomposed rocks, with little vegetable mould. The province of Kiangnan produces the green tea, and that of Fokien the black. The plants are different; the leaves of the green tea are larger, thinner, and lighter than those of the black, though grown in the same soil and situation. When the seeds are sown in a good soil, all that is necessary is to keep the ground free from weeds. The trees do not produce leaves fit for use, till they are three years old. Early in the spring, as soon as young leaves appear, they are picked, and this is very choice, and is called the imperial tea; in May they pluck them again, some of them full grown, and others young, and this mixture constitutes the Bohea; in the summer they again gather them when all the leaves are full grown. Every six or eight years the ground requires to be replanted.

China produces a variety of trees and fruits. Oaks of several species, some of 100 feet high, and twenty-four round, are said to be common; they are used for building, dyeing, and other purposes, and the acorns as food for the peasantry, either raw or made into cakes. The tallow tree is one of the largest and most beautiful plants in the country, and found from the south of Nankin even to Canton. It is formed like the oak in the height of its stem, and its spreading branches, with foliage green and bright, like the laurel, and small yellow flowers. Clusters of seeds succeed them in the winter, which, when ripe, burst and show seeds of a delicately white color. The oil plant is also a striking peculiarity; it is generally about six or eight feet in height, and bearing an abundance of white blossoms, which often look at a distance like a waste of snow, but on a nearer approach have the appearance of a vast garden.

The mineral productions of China, as a flat alluvial country, will not be expected to be abundant. Some writers have mentioned quicksilver, iron, tin, copper, gold, and silver, as found in the mountains; as well as a peculiar species of white copper. Formerly the gold and silver mines were not allowed to be opened, lest the people should thereby be induced to neglect the natural riches of the soil; and in the fifteenth century the emperor caused a mine of precious stones to be shut, which had been opened by a private person. Of late, however, the Chinese are less scrupulous, and a trade in gold is carried on. Several kinds of marble abound. Tutenague is likewise a mineral product of China. It is principally obtained in the province Houquang, and quite distinct from the white copper alluded to. Coal is met with in many of the northern provinces, and is the common fuel at Pekin and several other places. The Chinese musical stone, is a species of sonorous black marble. Various other minerals probably exist in the mountains towards the confines of Tartary, but the whole of these regions have hitherto been concealed from scientific investigation.

The *government* of this singular empire is a pure patriarchial despotism. The emperor is at once the only sovereign, and, on great occasions, the only priest. He is styled the 'Son of Heaven:' the present dynasty was careful to insert in the Pekin gazette, that 'the daughter of Heaven, descending on the borders of the lake Poulkouri, at the foot of the White Mountain, and eating some red fruit that grows there, conceived, and bore a son, partaking of her nature, and endowed with wisdom, strength, and beauty; that the people chose him for their sovereign, and that from him was descended the present 'Son of Heaven:' and the people are said to have the merit of implicitly believing this. At the Temple of the Sky (T'hyen-t'han), the emperor offers up, at the winter and summer solstice, oxen, sheep, goats, and hogs, that have been previously killed; himself, and all who assist in the sacred rites, being enjoined rigid abstinence on the occasion, both 'at bed and board.' The ceremonies are attended with the most magnificent display of gold and silver vessels; and the emperor testifies his deep humility, as the confessor of his people, for their numerous sins. Another of the principal religious ceremonies, in which he alone can officiate, is celebrated at the vernal equinox, when he marches forth in rich attire into the fields, turns up with his own plough the first earth, and scatters the first seed of the season; concluding the ceremony with offering up a cow to the Spirit of the earth.

In his civil capacity, however, for religion is regarded with great indifference, speaking generally, by the Chinese, he is still more all in all. 'Heaven,' said Confucius, 'has not two sons; earth has not two kings; a family has not two masters; and sovereign power has not two directors—one God, one emperor.' Kia-king, the late emperor, claimed boldly, in one of his proclamations, now before us, to 'hold the universal sovereignty of the earth;' and the reigning emperor, in his reception, or rather rejection, of lord Amherst's embassy, was by no means backward in similar pretensions. He more pertinaciously than his predecessor, insisted upon the ko-tou, or 'three kneelings, and nine knocks of the head upon the ground,' as a token of obedience and vassalship; and sent back the ambassador and suite in a rage, because, after travelling all night, he declined to come instanter, with the said genuflexions and knockings, into the imperial presence. In the public proclamations issued respecting the treatment of his lordship, on his return homewards, he was duly styled the English tribute bearer; and when the emperor, by a standing rule of Chinese policy, publicly expounded the faults that led to the non-reception of the embassy, he very coolly remarked, that 'contempt was improper towards our inferiors;' those 'who from an immense distance, and over vast seas, had come to present with respect, letters of due consideration and obedience.' That he therefore had selected some trifling presents out of those brought, and returned certain more valuable ones, 'as a reward;' in observance of the maxim of Confucius, 'give much, receive little.' He adds, what we apprehend he did not consult lord Amherst in stating, 'that when the ambassadors received the said gifts, they became exceeding glad, and evinced their repentance.'

But this 'great' and absolute 'emperor,' the 'father and mother of this people,' in whom resides all 'power, honor, and law, is himself,' Mr. Ellis was told by one of his chief ministers, 'the victim of ceremony; he is not allowed to lean back in public, to smoke, to change his dress, or in fact to indulge in the least relaxation from the mere business of representation. It would seem that while the great support of his authority is the despotism of manners, he himself is bound with the same chain that holds together the political machine; he only knows freedom in his inner apartments, where probably he consoles himself for public privations, by throwing aside the observance of decency and dignity.'

He is made, however, in a peculiar manner, the fountain of mercy: his fatherly kindness is said to remit the rigors of the law, whenever any portion of punishment is spared: the magistrates instruct the people in his name; and all his ministers are ordered to bring to him their complaints. An immense gong, or drum, is suspended at the door of the chief magistrate of every district in China, that none may be denied access to him, having this object in view.

He also, in a very singular way, appeals very frequently to public opinion. In no part of the world is every transaction of criminal justice more openly performed; every instance of death must not only have the imperial edict to sanction it, but the charges and an abstract of the trial are published in the Pekin gazette, which issues daily. In the same paper is also announced all the 'court news;' whether the 'Son of Heaven' is fasting or feasting, promoting or punishing, levying or remitting taxes, feeding the hungry, clothing the naked, &c. with his reasons for the same, in respectful amplitude.

The Quarterly Review, No. L. instances the will of the late emperor Kia-king, and the proclamation on the accession of his son and successor Taou-kuang, as curious and convincing proofs of the extreme desire manifested by the government that the sovereign should stand well with the people. The will of Kia-king is dated 2nd September, 1820, the day on which he died—suddenly, as it would seem—and is, as usual, the composition of his ministers. It commences thus: 'The Great Emperor, who received from heaven and revolving nature the dominion of the world, hereby announces his last will and testament to the subjects of his empire.' He then enumerates the advantages which he derived from the three years instruction and advice of his venerable father, after he mounted the throne from which he had retired, and continues, 'I have considered that the stability of a nation, and the grand principles of social order, consist in adoring heaven, imitating our ancestors, being active and diligent in all matters of government, and benevolent towards the people. I have borne in mind that heaven raises up princes for the sake of the people; and that the duty of affording to the people sustenance and instruction is imposed on The One Man.'

He then goes on to remind the people, among other things, how, in conformity with these principles, he suppressed insurrections and disturbances—that he issued from time to time large sums of money to repair the banks of the Yellow River, 'which from ancient days till now has always been the scourge of China,—that he had frequently remitted the taxes and all arrears, in order to diffuse abundance, and create in all ranks of his subjects a general joy—that while his heart was rejoicing in the universal plenty that the country was blessed with in consequence of an abundant harvest, he set out, in reverential obedience to the institutions of his ancestors, on a hunting excursion into Tartary, and that, to avoid the great heat, he stopped one day at a cottage on the mountain; 'and though,' continues he, 'I am advanced beyond the sixth decade of my life, and can mount and descend a hill without being fatigued, yet, on this occasion, the intense heat of the atmosphere affected me, so that yesterday, when I gave the whip to my horse in crossing the mountain of 'Expanded Benevolence,' I felt the phlegm rise in my throat even to suffocation, and had reason to apprehend that I had not long to live. However, in obedience to the rules of the departed sages of my family, I had already, in the fourth year of my reign, in the fourth month, on the tenth day, at five o'clock in the morning, previously appointed an heir to the throne; which appointment I myself sealed and locked up in a secret casket.' This casket the great officers of state are commanded to open without delay.

A few days after the death of Kia-king, appeared the proclamation of his successor, in which the virtues of his late father are enumerated, and the extreme reluctance set forth with which his unworthy successor was compelled to yield to the general voice and to occupy the vacant throne. Next follows the He-cha-ou, or 'proclamation of joy,' in which he announces his intention of holding a solemn feast in honor of heaven and earth, and of the superintending deities of the land and its produce; and of conferring benefits on all ranks and descriptions of people. These marks of imperial beneficence are arranged under twenty-two different heads, and consist chiefly of gifts to the great officers of state—promotion of one step to all civil and military officers Tartars and Chinese—permission to officers below a certain rank to send one of their sons to an imperial college—restoration of officers who have been suspended from rank or pay, or both—a general amnesty to all criminals except those convicted of rebellion or murder—and, adds the He-cha-ou, 'if any person shall again accuse those so pardoned for their former offences, the accuser shall be punished according to the crime alleged against the accused;' (the Chinese must surely have a wonderful propensity for bringing offenders to justice, to make a hint of this kind necessary)—remission of the public debts of officers in the army—increase of pensions to superannuated soldiers, &c. &c.

The executive government is administered by six public, or departmental boards, similar to our navy, treasury boards, &c.; the six presiding officers of each forming, with the chief princes of the blood, a final or privy council of state. From these boards officers, are sent to every part of the empire, who forward, by express and otherwise, daily abstracts and reports of all the business, civil and military, of the provinces.

Sir George Staunton, among other important contributions, for which we are indebted to him respecting China, has lately furnished the British public with a complete copy of the penal law of this great empire, or a translation of the Ta Tsing Leu Lee, the standard law authority at Pekin. It is arranged under seven general divisions, comprising thirty books, and divided into 436 sections. The titles of the divisions and books are as follow

First Division. General Laws.
Containing one book entitled . . . Preliminary Regulations.

Second Division. Civil Laws.
Containing two books entitled . . { System of Government.
Conduct of Magistrates.

Third Division. Fiscal Laws.
Containing seven books entitled . . { Enrolment of the People.
Lands and Tenements
Marriage.
Public Property.
Duties and Customs.
Private Property.
Sales and Markets.

Fourth Division. Ritual Laws.
Containing two books entitled . . { Sacred Rites.
Miscellaneous Observances.

Fifth Division. Military Laws.
Containing five books entitled . . { Protection of the Palace.
Government of the Army.
Protection of the Frontier.
Military Horses and Cattle.
Expresses and Public Posts.

Sixth Division. **Criminal Laws.**

Containing eleven books entitled . {
- Robbery and Theft.
- Homicide.
- Quarrelling and fighting.
- Abusive Language.
- Indictments and Informations.
- Bribery and Corruption.
- Forgeries and Frauds.
- Incest and Adultery.
- Miscellaneous offences.
- Arrests and Escapes.
- Imprisonment, Judgment, and Execution.

Seventh Division. **Laws relative to Public Works.**

Containing two books entitled . {
- Public Buildings.
- Public Ways.

The grounds of mitigation and exception to these laws are of course numerous; Sir George Staunton's general testimony, confirmed by that of Mr. Barrow and other able writers, is that, as in our own criminal jurisprudence, the denunciation against particular crimes is severe, the execution lenient. In 1784, according to father Amiot, the entire number of criminals who suffered sentence of death, throughout China, amounted to 1348, or one in 108,000; this was thought a large number at that period, and would give the proportion of 160 annually for Great Britain and Ireland.

The bamboo, in various degrees of its administration, is the general instrument of punishment, from the highest to the lowest class of offenders: it is enjoined by law to be made only of two sizes, the larger 5 feet 8 inches long, 2¼ inches broad, and 2 inches thick, weighing 2¾ lbs.; the smaller 5 feet 8 inches long, 2 inches broad, 1¼ thick, and in weight only 1¾ lbs. The kia or cangur, is a portable wooden pillory which hangs on the neck, weighing 33 lbs., and is to be 3 feet long and 2 feet 9 inches broad; an iron chain 7 feet long, and weighing 6¾ lbs., hand-cuffs and smaller fetters, are also used to secure prisoners. The question by various tortures is in use, except to certain privileged classes. We select from the work above alluded to the following abstract of this singular code.

DIVISION I.—GENERAL LAWS.

The lowest degree of punishment referred to in the Ta Tsing Leu Lee, is a moderate correction inflicted with the lesser bamboo, in order that the transgressor of the law may entertain a sense of shame for his past, and receive a salutary admonition with respect to his future conduct. Of this species of punishment there are five degrees. The first is ten, the fifth, fifty blows, which are, in fact reduced to four, and never exceed twenty blows. The second extends from sixty to 100 blows, of which only from twenty to forty are actually inflicted. The third division is that of temporary banishment to any distance not exceeding 500 lee (about 150 miles), 'with the view of affording opportunities of repentance and amendment.' Of this there are also five gradations, extending from one to three years' banishment, accompanied with a corporeal punishment, nominally from sixty to 100 blows, but actually reduced as above. Perpetual banishment, the fourth degree of punishment, is reserved for the more considerable offences, and extends to the distance of 2000, and even 3000 lee, in addition to 100 strokes of the bamboo. The fifth and ultimate punishment, which the laws ordain, is death, either by strangulation or decollation.

The following crimes are distributed under ten heads, being distinguished from others by their enormity; they are always punished with the utmost rigor, and, when the offence is capital, it is excepted from the benefit of any act of general pardon; being considered, in each case, a direct violation of the ties by which society is maintained, they are expressly enumerated in the introductory part of this code, that the people may learn to dread, and to avoid the same. 1. *Rebellion*, or an attempt to violate the divine order of things on earth. 2. *Disloyalty*, or an attempt to destroy the imperial temples, tombs, or palaces. 3. *Desertion*, or the offence of undertaking to quit or betray the interests of the empire, in order to submit or adhere to a foreign power. 4. *Parricide*, or the murder of a father or mother, uncle, aunt, grandfather, or grandmother. 5. *Massacre*, or the murder of three or more persons in one family. 6. *Sacrilege*, or stealing from the temples any of the sacred articles, or purloining any article in the immediate use of the sovereign. 7. *Impiety*, or disrespect or negligence towards those to whom we owe our being, and by whom we have been educated and protected. 8. *Discord in families*, or a breach of the legal or natural ties which are founded on connexions by blood or marriage. 9. *Insubordination*, or the rising against, or murdering a superior magistrate by an inferior; or any insurrection against the magistrates in general by the people. 10. *Incest*, or the cohabitation, or promiscuous intercourse, of persons related in any of the degrees within which marriage is prohibited.

Sections seven and eight of this division relate to offences committed by officers of government. These, whether of a public or private nature, are punishable in ordinary cases by the infliction of corporeal chastisement; but are commutable for fine or degradation, according to the number of blows of the bamboo to which they are nominally liable. Thus, if they offend in their public capacity, instead of receiving sixty blows, they forfeit a year's salary; and instead of 100, lose four degrees of rank, or are removed from their situation. When the offence is of a private nature, the punishment is doubled; the last degree is entire degradation, and dismissal from the service of government. Those who are enrolled under the Tartarian banners, are punished with the whip instead of the bamboo; and, in cases of banishment, they are sentenced to wear the *cangue*, or moveable pillory, for a specified number of days.

Division II.—Civil Laws.

The first book is chiefly occupied in defining and describing the regulations to be observed by the great officers of state, and in pointing out their respective relations to the subordinate magistracy. It consists of fourteen sections, the first of which says of hereditary succession, 'Every civil and military officer of government whose rank and titles are hereditary, shall be succeeded in them by his eldest son, born of his principal wife, or by such eldest son's surviving legal representative, chosen according to the general rule here provided.' The second son, in case of the decease or incapacity of the eldest, is to succeed. In default of sons by the principal wife, the sons of the inferior wives according to seniority. All appointments to great offices, whether civil or military, depend solely on the authority of the emperor; any great officer of state, presuming to confer any appointment without such authority, is declared guilty of a capital offence. If an officer quit his station without leave, or delay repairing to it; if he fails to attend at court, or is found guilty of intriguing or caballing with his colleagues, he renders himself liable to very severe penalties: in the last case, if the cabal tend to impede and obstruct the measures of government, his offence is capital; his wives and children become slaves, and his property is confiscated. Book II. contains fourteen sections on the conduct of magistrates.

Division III.—Fiscal Laws.

Every master of a family is compelled to enter on the public register, an account of his taxable property, and the names and number of the male individuals of full age for service, namely, from sixteen to sixty years. The omission of such registry, or a fraudulent entry, is punishable with the bamboo, according to the nature of the offence. Families and individuals are registered according to their professions. This book also inculcates impartiality in the levy of taxes and personal services, and in the allotment of those services; prescribes punishment and penalties for the evasion of personal service by concealment of desertion; for abuses of the magistrates in requiring personal services beyond the legal extent, or for private purposes; and enjoins the taking care of the aged and infirm. All poor destitute widowers, and widows, the fatherless and childless, the helpless and the infirm, shall receive sufficient maintenance and protection from the magistrates of their native city or district, whenever they have neither relations nor connexions upon whom they can depend for support; any magistrates, refusing such maintenance, and protection, shall be punished with sixty blows. Also, when any such persons are maintained and protected by government, the superintending magistrate and his subordinates, if failing to afford them the legal allowance of food and raiment, shall be punished in proportion to the amonnt of the deficiency, according to the law against an embezzlement of the government stores.

Book II. of this division is entitled Lands and Tenements, and consists wholly of regulations concerning the registry of lands, the payment and evasion of the land-tax, fraudulent returns respecting productive and unproductive lands; the personal visitation of lands that have suffered from any calamity; sales and mortgages of land, and the punishment of frauds committed therein; and a regulation by which officers of government are restricted from purchasing lands within the limits of their jurisdiction. The whole of this book is curious, and throws considerable light upon, though it does not finally settle, the doubtful question, whether the tenure of land in China is held in the nature of a freehold, or whether the sovereign is, in fact, the proprietor of the soil, while the nominal landholder is, like the zemindar in India, no more than the steward or collector of rents for his master. That the rich merchants purchase landed property, which is transmitted to their posterity, and continued in the family for many generations, there can be no doubt whatever; yet it is evident from the Leu-lee, that the proprietorship of the landholder is but of a qualified nature.

Book III. of this division relates wholly to marriage: 'When a marriage, it enacts, is intended to be contracted, it shall be, in the first instance, reciprocally explained to, and clearly understood by, the families interested, whether the parties, who design to marry, are or are not diseased, infirm, aged, or under age, and whether they are the children of their parents by blood, or only by adoption. If either of the contracting families then object, the proceedings shall be carried no further; if they still approve, they shall then in conjunction with the negociators of the marriage, if such there be, draw up the marriage-articles, and determine the amount of the marriage presents. If, after the woman is thus regularly affianced by the recognition of the marriage articles, or by a personal interview and agreement between the families, the family of the intended bride should repent having entered into the contract, and refuse to execute it, the person amongst them who had authority to give her away shall be punished with fifty blows, and the marriage shall be completed agreeably to the original contract; although the marriage articles should not have been drawn up in writing, the acceptance of the marriage presents shall be sufficient evidence of the agreement between the parties.'

The remaining clauses provide, in every possible way, against the infraction of a marriage-contract, whether on the part of the man or woman affianced, or of their respective relations. Lending a wife on hire is punishable with eighty blows; lending a daughter with sixty: those who receive the wives or daughters on hire for a limited time, are to participate equally in the aforesaid punishment, and the parties are to be separated; the pecuniary consideration for such loan to be forfeited to government. Polygamy being allowed, it has been found necessary to settle, by law, the rank and priority among wives. The first wife is usually chosen by the parents out of a family equal in point of rank to their own; the ceremony is conducted with a certain degree of splendor and notoriety, and the lady is entitled to all the rights and privileges of the mistress of the family. After this the husband may espouse other wives, but without the same ceremony, and without consulting his friends: he may take them from any class of society, and bring them into his house as inferior wives, or concubines, or handmaids, or by whatever name he may please to call them; these inferior wives are equal in rank among themselves, but all of them subordinate to the first wife. He who degrades his first wife to the condition of an inferior wife, is liable to a punishment of 100 blows; and if, in the life-time of his first wife, he raises an inferior wife to the rank and condition of a first wife, he is punished with ninety blows; in both cases the wives are replaced in their original situations: if a man takes a second principal wife, while the first is living, he incurs a punishment of ninety blows; the marriage is void, and the woman must be returned to her parents.

'If any officer of government marries the wife or daughter of any person having an interest in the legal proceedings at the same time under his investigation, he shall be punished with 100 blows, and the member of the family of the bride, who gave her away, shall be equally punishable. The woman, whether previously married or not, shall be restored to her parents, and the marriage present forfeited, in every case, to government. When the marriage is a compensation for some unjust decision, on a subject under the magistrate's investigation, the punishment shall be increased as far as the law, applicable for such a deviation from justice, may authorise.'

In section 116 is the law of divorce. If a husband repudiates his first wife without her having broken the matrimonial connexion by the crime of adultery, or otherwise; and without her having furnished him with any of the seven justifying causes of divorce; he shall, in every such case, be punished with eighty blows. Moreover, although one of the seven justifying causes of divorce should be chargeable upon the wife, namely, 1. barrenness; 2. lasciviousness; 3. disregard of her husband's parents; 4. talkativeness; 5. thievish propensities; 6. envious and suspicious temper; 7. inveterate infirmity; yet if any of the three reasons against a divorce should exist, namely, 1. the wife's having mourned three years for her husband's parents; 2. the family's having become rich after having been poor previous to, and at the time of marriage; 3. the wife's having no parents living to receive her back again; in these cases, none of the seven aforementioned causes will justify a divorce, and the husband who puts away his wife upon such grounds, shall suffer punishment two degrees less than that last stated, and be obliged to receive her again. If the wife shall have broken the matrimonial connexion by an act of adultery, or by any other act which, by law, not only authorises, but requires that the parties should be separated, the husband shall receive a punishment of eighty blows, if he retains her.

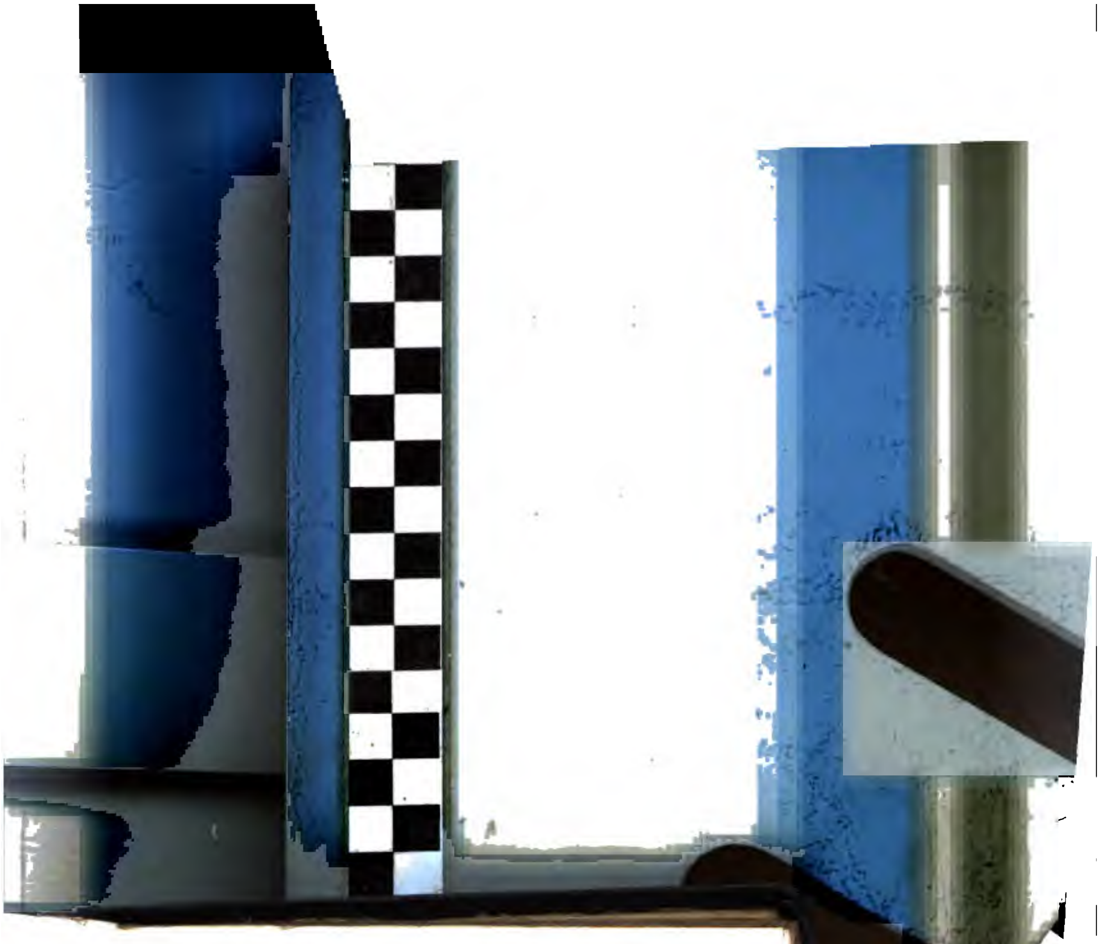
Criminal intercourse, by mutual consent, with an unmarried woman (according to book viii. of the tenth division), shall be punished with seventy blows; if with a married woman, the punishment shall be eighty blows. Deliberate intrigue with a married or unmarried woman shall be punished with 100 blows. Violation of a married or unmarried woman, that is to say, a rape, shall be punished with death by strangulation. An assault with an intent to commit a rape shall be punished with 100 blows, and perpetual banishment to the distance of 3000 *lee*. Criminal intercourse with a female under twelve years of age shall be punished as a rape in all cases. In cases of criminal intercourse by previous agreement, or by any intrigue, the man and woman shall be esteemed equally guilty; and, if any male or female child be the fruit of such connexion, it shall be supported at the expense of the father; the mother shall either be sold in marriage or remain with her husband, according to his choice; but if the husband is guilty of selling his wife in marriage to the adulterer, the parties shall be respectively punished with eighty blows; the woman shall be sent back to her family, and the price paid for her, forfeited to the government. The woman on whom the rape is committed shall not be liable to any punishment. When a woman is found with child, she shall be liable to the penalties of this law, though the father should not be discoverable. Criminal intercourse between officers of government and females under their jurisdiction is an aggravation of the offence.

We pass now to a specimen of

DIVISION V.—or the MILITARY LAWS OF CHINA.

Book I. of this division is entitled, Protection of the Palace, and relates wholly to the duties of the guards of the imperial palace. All persons are forbidden to approach the imperial temple, burying-ground, hall of oblations, or any part of the imperial palace or gardens. To enter any of the apartments in the actual occupation of the emperor is punishable with death; and the most strict regulations are laid down with regard to those who are occupied in the grounds. Their names are to be inserted on a list in entering and returning through the several gates. No one is allowed to walk or ride on the roads and bridges over which the emperor is to pass. All laborers, messengers, and artificers, must be provided with personal passports before they can enter any of the gates of the imperial palace: they are not to stay after their work is done; they are counted in going in and coming out, to ascertain that none remain behind. At the end of every month the lists are examined, to see how often any of the attendants have passed the gate. None of the relations of persons convicted of crimes can be employed about the palace. During the journeys of the emperor, the people must make way for the approach of his majesty, and not come within the lines of his guard; when approaching a place unexpectedly, so as not to allow time for the people to retire, they are to fall prostrate until the retinue shall have passed.

Book II. is entitled Government of the Army, and may be considered as the Articles of War of this empire. The regulations on every point connected with it are well arranged and any neglect



or disobedience is punished with the greatest severity. If supplies of arms, ammunition, or provisions, are not regularly transmitted; if any deficiency appears; if the commanding officers of the troops, who have received orders to co-operate lose time and wait the issue of events; if those entrusted with the orders for assembling the troops do not execute their commissions in due time; any error or failure that may arise from such causes shall subject the offending parties to the punishment of death.

Division VI.—contains the Criminal Law.

Book I. is entitled Robbery and Theft. The first article is high treason; all persons convicted of which, whether principals or accessaries, shall suffer death by 'slow and painful execution;' which, Sir George Staunton tells us, amounts to a license to the executioner to aggravate and prolong the sufferings of the criminal by any species of cruelty he may think proper to inflict. All the male relations in the first degree, and their sons, are indiscriminately to be beheaded; all under the age of sixteen, and the females in the first degree, to be distributed as slaves to the great officers of state: their property of every description to be confiscated to the public. Rebellion, sacrilege, stealing the seals or stamps of office, stealing from the imperial palace, are all capital offences.

There are many nice distinctions in the law concerning robbery, and the punishment is different for different persons, concerned in the same robbery, according to the share each individual appears to have taken; all are, however, guilty of a capital offence, when the robbery is actually committed by violence: the attempt to commit robbery is punishable by perpetual banishment. A single person if detected taking openly and by force the property of another, is sentenced only to 100 blows and three years banishment; but if the plundered individual be wounded, the offender in that case must suffer death. An attempt to steal is punishable with fifty blows. Actual stealing to the amount of 120 ounces of silver is a capital offence; but there is reason to believe that this severe sentence is never enforced. Stealing from relations and connexions by marriage, in the first degree, incurs a punishment less by five degrees than in ordinary cases; because, as Sir George observes, this is not a violation of an exclusive right, but only of the qualified interest which each individual has in the share of the family property. Extorting property by threats is punishable one degree more severely than in ordinary cases of theft. Swindling is punished in the same manner as theft, in ordinary cases, excepting that the offender is not liable to be branded. Kidnapping and selling free persons as slaves are punished with 100 blows and perpetual banishment; and where force is used, and wounds inflicted, by death. There is a very long section entitled Disturbing Graves, and this subject is evidently connected with some superstitious practices in use among the Chinese. Entering without authority a dwelling house, by night, is punishable with eighty blows. The master is justified if, in the moment of entering, he puts the intruder to death; but not so, if he kills him after having seized his person.

Book II. is entitled of Homicide, and marks the great care of the Chinese, in inflicting severe punishment. There are no fewer than five and twenty additional clauses to the section entitled Killing an Adulterer, which are so many statutes that have been adopted, from time to time, according to the differences which have taken place in the situation and circumstances of parties.

In cases of premeditated homicide, the original contriver is to suffer death by decapitation; the accessaries, by being strangled: accessaries, not contributing to the act, are punishable with 100 blows and perpetual banishment. Those who commit murder for the sake of plunder are to be beheaded, without distinction between principals and accessaries. The design to commit parricide subjects all the parties, principals as well as accessaries, to the punishment of being beheaded; if actually committed, they must all suffer death by a slow and painful execution. Slaves designing to murder, or actually murdering, their masters, are subject to the same degree of punishment.

If a principal or inferior wife is discovered by her husband in the act of adultery, he is authorised to kill the adulterer, or adulteress, or both, at the moment. The rearing of venomous animals, and the preparing of poisons, for the destruction of man, are capital offences, although it may not appear that any person has been actually killed by means of such drugs or animals. Killing or wounding in play, by error, or by accident, is liable to the same punishment as is provided in ordinary cases of killing or wounding in an affray; but the offender is permitted to redeem himself from the capital part of the punishment, by the payment of a fine to the family of the person deceased or wounded. By pure accident is understood a case of which no sufficient previous warning could be given, either directly by the perceptions of sight and hearing, or indirectly by the inferences drawn by judgment and reflection; as, for instance, when lawfully pursuing and shooting wild animals, when throwing a brick or a tile, and in either case unexpectedly killing any person; when, slipping and falling down, so as to hurt a comrade or by-stander; when sailing, and being driven involuntarily by the winds; when riding, and unable to stop or govern your horse; or, lastly, when several persons jointly attempt to raise a great weight, and the strength of one of them fails, so that the weight falls, and kills or injures his fellow-laborers:—in all these cases there could have been no previous thought or intention of doing an injury, and therefore the law permits such persons to redeem themselves from the punishment provided for killing or wounding in an affray, by a fine to be paid to the family of the deceased or wounded person.

Medical men performing any operation, or administering any drugs contrary to the established rules and practice, and thereby killing the patient, are considered as guilty of homicide; but if, on examination, it shall appear to have been simply an error, the practitioner may redeem himself by a fine; but must quit his profession for ever. If the patient dies, the practitioner who is convicted of designedly employing improper medicines, or otherwise contriving to injure his patient, shall suffer death by being beheaded.

'Book II. of Quarrelling and Fighting, enters into a minute and circumstantial detail of blows given under every conceivable circumstance, and takes into consideration every possible relation in point of rank or connexion between the parties. It fixes the periods of responsibility for the consequences of a wound. Any person who is guilty of striking his father, mother, paternal grandfather or grandmother; and any wife, who is guilty of striking her husband's father, mother, paternal grandfather or grandmother, shall suffer death by being beheaded;—but, 'if a father, mother, paternal grandfather or grandmother, chastises a disobedient child or grandchild in a severe and uncustomary manner, so that he or she dies, the party so offending shall be punished with 100 blows.'

We are indebted to the able article CHINA from the pen of Mr. Barrow, in the supplement to the *Encyclopædia Britannica*, for the following table of pecuniary redemption, in cases so legally excluded from the benefit of general acts of grace and pardon They are not necessarily redeemable; but, by edict of Kien Lung, may be made so upon petition.

Rank of the party offending.	Sentence.	Pecuniary Commutation.
		Oz. of Silver.
An officer above the fourth rank	Death by strangulation or decollation.	12,000
—— of the fourth rank		5,000
—— of the fifth or sixth rank		4,000
—— of the seventh, or any inferior rank, or a doctor of literature		2,500
A graduate or licenciate		2,000
A private individual		1,200
An officer above the fourth rank	Perpetual banishment.	7,200
—— of the fourth rank		3,000
—— of the fifth or sixth rank		2,400
—— of the seventh, or any inferior rank, or a doctor of literature		1,500
A graduate or licenciate		1,200
A private individual		720
An officer above the fourth rank	Temporary banishment, or blows with the bamboo.	4,800
—— of the fourth rank		2,000
—— of the fifth or sixth rank		1,600
—— of the seventh, or any inferior rank, or a doctor of literature		1,000
A graduate or licenciate		800
A private individual		480

These commutation fines are said to bring considerable sums into the public treasury.

Practically, many curious, and doubtless many unjust and immoral cases of commutation take place. Direct bribery to pervert justice is said to be often attempted with success. Pera Amiot relates the circumstance of a master mason having been killed while under chastisement by an officer of the household of a prince. The officer bribed a laborer for ten ounces of silver, and a promise of respite, to confess himself the homicide; and distributed three ounces of silver amongst other laborers to depose to a quarrel, in which the death-blow was said to be inflicted. The man was tried, and condemned to suffer death according to the law, on the day of public execution at the autumnal solstice: but it being customary for a principal minister of the crown to examine the criminals previously to their being turned off, his courage failed him, as to the issue, and he loudly bawled out the whole affair. The officer upon this was tried, and his original offence being considered as aggravated by the attempt to involve an innocent person in the consequences, he was sentenced to die by slow and painful means: while the judges and assessors of the court, who tried the laborer, were degraded and mulcted. We cannot help regarding this, with the good father, as on the whole a creditable instance of Chinese justice. If in one quarter it demonstrated corruption, it also exhibits the remedy as at hand, and as very promptly and energetically applied. But that great deceit and corruption take place in the administration of the criminal law *throughout* China, seems to be established. A most curious modern instance is that supplied by the *Quarterly Review*, May, 1810, as follows:—

'In February, 1807, fifty-two seamen belonging to the East India Company's *ship Neptune*, being on shore at Canton, got into a general scuffle with some hundreds of Chinese, when one of the latter received an unfortunate blow on the head with a stick, and died in consequence of it. The Chinese merchant, who had given security for the good conduct of the ship's company, being called upon by the magistrates, applied to the English factory to deliver up to

justice one of the seamen, no matter whom, engaged in the affray. As it was impossible however to ascertain whether any, or which, of the Neptune's men had given the blow, the supercargoes very properly resisted the demand. The chief of the factory was threatened with imprisonment until a man should be given up, and the security-merchant was actually imprisoned, hand-cuffed, and menaced with corporeal punishment. The cargoes for the Company's ships were withheld. These measures not succeeding, the magistrates next demanded that those who were most active, who were known to be drunk, and who carried sticks, should be examined, and confession extorted from them by the application of the torture. This demand was of course rejected. After more than a month lost in threats, edicts, proclamations, and daily conferences, the security-merchant was allowed to send his agents to all the Company's ships in the river, to offer a reward of 20,000 dollars to any person who would point out the individual who had struck the deceased. To the honor of British seamen, they resisted the temptation, great as it was, to a man. The magistrates then assented to examine the fifty-two men in the ordinary way; the British factory was fitted up as a court of justice; the great officers of state, and the judges attended, and the result was the singling out of eleven men as having been the most active in the affray. On a re-examination of these men, they endeavoured to prevail on some one to plead guilty, under an implied promise that he should not be punished. This failing, it was suggested that the affair might be got over if the officers of the Neptune would depose, that they had seen a sailor carrying a bamboo stick over his shoulder, against which, in the hurry and confusion, a Chinese had accidentally run his head. The proposal of so ridiculous and pitiful an expedient met with the contempt it deserved. The next suggestion was, that some one of the sailors should be prevailed on to state that, finding an attempt made on his pocket, he had struck behind him, and might thus have wounded the deceased. This expedient meeting with no better success, they proceeded in their examination, and dismissed all except two, Julius Cæsar and Edward Sheen. It appeared that Julius Cæsar had a small cane in his hand on the day of the riot, but was not outside of the factory, and that Edward Sheen was on the outside of the factory, but did not carry a stick; he confessed however that he had a Chinese tobacco-pipe in his hand, the tube of which was of bamboo; the court therefore decided that he carried a stick, and consequently that he was the culprit. Having got thus far over the ground, a long negociation took place as to the disposal of Edward Sheen, until the final decision on the case should be received from Pekin, and it was at length agreed that he should be left behind in charge of the supercargoes.

'Having thus briefly stated the leading facts, we shall now see in what manner the case was represented to the supreme court at Pekin, and its decision thereupon.

'The viceroy of Canton states, for the information of the supreme court, that Edward Sheen, an Englishman, being in an upper story of a warehouse which overlooked the street, and in which there was a window opening with wooden shutters, did, on the eighteenth day of the first moon, employ a wooden stick in an oblique direction to keep open the shutter, and that in doing this the wooden stick slipped and fell downwards; that Leao-a-teng, a Chinese, passing at the moment, was struck and wounded by the falling of the said stick upon his left temple, and that on the evening of the following day, he died in consequence of the wound. That repeated orders had been given to the chief of the English factory to deliver up the man to justice; that in reply it was alleged the said criminal was sick of an ague and fever, and under medical treatment; that on his recovery he was confronted with the relations of the deceased; that after repeated examinations, the said criminal Edward Sheen had acknowledged the truth of all the facts here stated, without reservation; that he had consequently been proved guilty of accidental homicide, and ought therefore to be sentenced to pay the usual fine, to redeem himself from the punishment of death by strangulation.

'Upon this report the supreme court observes, that the case appears to be one of those acts, of the consequences of which neither sight, hearing, nor reflection could have given a previous warning; that the said Edward Sheen should, therefore, be allowed to redeem himself from the punishment of death by strangulation, by the payment of a fine (amounting to about £4. 3s. sterling), to the relations of the deceased, to defray the expenses of burial, and then be dismissed to be governed in an orderly manner in his own country.'

The Hong merchant is said to have expended little short of £50,000 in hushing up this affair. And, here again, we must contend, in justice to the Chinese, that a considerable and just estimate of the value of human life seems to have existed somewhere.

The *religion* of China is certainly neither a system of general public devotion or worship, nor of future rewards nor punishments. The former, the general quiet policy and jealousy of the government seem to forbid; i. e. all public assemblies of the people; and to the latter idea no appeal is ever made, nor would a Chinese moralist allow of there being any necessity for such an appeal. Ever-present vigilance and punishment, or reward, is the boast of the imperial administration. Here are therefore no saint or idol, feast, or sabbath days: no ordinances of public worship; no public offices of the priesthood; and hardly anything that can be called a public establishment of religion. The emperor, as we have before stated, is the high priest and his state officers are at certain great feasts the assistant ministers of religion. In the ritual law, are various penalties for every species of neglect, irregularity, or disorder, which may take place previous to or during the performance of the sacred rites. The animals, precious stones, and other oblations, must be of a proper quality and quantity. An officer, having taken the oath of abstinence, must neither put on mourning, nor visit the sick, nor take cognizance of capital offences, nor partake of a feast, nor pass the night with his family, till the sacred rites have been performed. To damage or destroy the altars, mounds, or terraces, consecrated to the sacred or imperial rites, is punishable with 100 blows, and perpetual banishment. Magicians. leaders of sects, and teachers of false doctrines, are liable to very severe penalties; and among the teachers of false doctrines are included the Roman Catholic missionaries, who, however, are caressed or persecuted as it may suit the convenience or the caprice of the ruling powers.'

The principal sects of the tolerated priests are those of Fo (Buddho), and Tao-tse; the number of temples dedicated to the former deity is very great, but none can be built without special license from the government, and they are treated with comparative indifference both by the rulers and the people. 'Religion in China,' says Mr. Ellis, 'although addressed in all directions to the eye, did not appear to have much influence upon the understanding or passions of the people. It has all the looseness and vanity, with less of the solemnity and decency, of ancient polytheism. Their temples are applied to so many purposes, that it is difficult to imagine how any degree of sanctity can be attached either to the dwellings or persons of their deities. The influence of superstition is, however, general and extensive; it is displayed in acts of divination, and in propitiatory offerings to local or patron deities. Its observances belong rather to the daily manners than to the moral conduct of the people.' In another place, he says, 'I visited a temple near our anchorage, connected with a small tank, in which are some sacred fish. This water is also said to be infested with evil spirits, and whatever support the temple receives from donations is probably derived from the credulity of the neighbourhood upon this point. The priests offered for sale a small pamphlet, explanatory of certain religious terms. It was remarked by some that the priests had all an idiotic expression of countenance; to me it seemed rather the consciousness of belonging to a degraded profession. The priests are taken from the very lowest classes, and it is scarcely possible to conceive a body more degraded, and indeed more deserving of degradation. In their indifference to all the decencies of religion, contrasted with the multitude of their temples and idols, the Chinese exhibit a striking peculiarity of national character.'

Magistrates, at their inauguration, perform public devotions to the honor of Confucius, in a hall or temple dedicated to his memory; the usual oblation is that of a hog, as being the most useful of animals; and the sacrifice is performed before a pedestal, bearing simply the name of that sage. At the foot a pit is dug to receive the hair and offal. Father Intorcetta, in his treatise De Cultu Sinensi, has given the whole ceremony from a Chinese author: it is said to bear a marked resemblance to the high mass of the Catholics. Libations of wine are poured out—solemn hymns chaunted—grand instrumental music and the offering of incense being mingled—and the worshippers finally prostrating themselves before the tablet, and passing round the 'cup of happiness.'

The public festivals, which are both of a civil and religious nature, are those of the New Year, the feast of Lanterns, and of the Full Moon. The last is generally confined to noisy mirth all night among the common people. But at the opening of the new year all ranks proclaim holiday; and on New-Years' Day, all labor being forbidden, family visits, and compliments, are exchanged, the houses are newly painted and adorned, and every Chinese is watchful of the general aspect of its events, believing that in the occurrences of that day he has an epitome of what will befal him during the year ensuing. The feast of Lanterns commences two days before, and continues two days after, the first full moon of the new year. On this occasion, every city and village, the shores of the sea, and the banks of the rivers, are hung with painted lanterns of various shapes and sizes; some of them being seen in the windows of the poorest houses. No expense is spared on this occasion. The rich often lay out 8*l*. or 9*l*. sterling on one lantern; and some of them are very large, composed of six wooden frames neatly painted or gilt, and filled up with pieces of fine transparent silk, upon which are painted flowers, animals, and human figures; others are blue, and made of a transparent kind of horn. Several lamps, or a number of wax candles, are fixed in the inside; to the corners of which are placed streamers of silk and satin of different colors, with curious pieces of carved work on the top. The Chinese, being acquainted with our magic lanterns, also introduce them in this festival. They have also the art of forming snakes sixty or eighty feet long, filled with lights from one end to the other; which they cause to twist themselves into different forms, and move about as if they were real serpents. During this festival all the varieties of Chinese fire-works, so justly admired, are exhibited. 'A Chinese,' it has been said, 'knows not why, nor makes any enquiries wherefore, these things are. It is an ancient custom, and that is enough for him. The inscriptions on these lanterns would seem to point out its religious origin. The most common run, Tien-tee Sansheai, Van-lin, Chin-tsai, 'Oh heaven, earth, the three limits, and thousand intelligences, hail!'

The most creditable feature of their morals is the universal respect paid by children to their parents; and by the young, generally, to the aged. This is in fact the basis of all moral, political, and religious duty, in the estimation of the Chinese, and is, it should be added, an universal principle of action. 'The Superior man,' says one of their most celebrated commentators on the text of Confucius, 'does not go out of his own house to perfect himself in the art of governing a country. It is filial veneration that he cherishes towards his sovereign, fraternal respect which he exercises towards his superiors, and fatherly compassion that he displays towards the great body of the people.' (See Dr. Marshman's *Clavis Sinica*, 'Ta-Hyoh,' p. 19). All persons of a respectable rank in society build a mausoleum to the memory of their ancestors; and rich and poor unite in the usage of visiting the tombs of their parents every spring. On this occasion 5000 or 10,000 persons will sometimes be found in one assembly; and the only precedence in making the oblations is given to the oldest men of the groupe. So particular are the Chinese in their veneration for the dead, that should the place of their first deposit become damp or swampy, they will remove them to a drier spot.

Even the authority of the emperor is every where regarded as paternal, and that to a ludicrous extent. 'I this day,' says Mr. Ellis, 'saw the pantze inflicted upon one of the boatmen, and was surprised at the comparative lenity of the punishment; the strokes, twenty-five in number, were inflicted on the back of the thighs with a half bamboo, six feet long, and two inches wide: so little force was used, that the suffering did not certainly exceed that of a tolerably severe flogging at school. The culprit, according to the established usage, returned thanks, when the punishment was over, to the mandarin, by prostration. This practice, absurd in appearance, and unnatural in reality, arises from the patriarchal theory of the government, which supposes that judicial punishments are the corrections of paternal affection, and therefore reluctantly inflicted.'

We have noticed a Chinese *superstition* with regard to the new-years' day. This is extended to many other lucky and unlucky days, duly marked in the imperial calender. A board of imperial astronomers, or astrologers rather, regulates the propitious days for the court; and on the unlucky days no contract is expected to succeed, no marriage, and even on some of them no funeral must take place. They have also great faith in the good fortune of odd numbers: there are they say *three* grand kinds of luminaries, the sun, moon, and stars; *three* superior beings, God, angels, and man; *three* essential powers, heaven, earth, and man; *three* grand relations of life, prince and people, father and son, husband and wife. Their chief temples have therefore *three* quadrangular courts, and the buildings around are said to be inhabited by *three* species of spirits, heavenly, earthly, and infernal. *Five* great virtues are often spoken of in their ancient books, *charity, justice, good manners, prudence, and fidelity*: they reckon *five* domestic spirits; *five* elements; *five* primitive colors; *five* seasons of the year, over which are *five* presiding spirits; *five* planets; *five* points of the compass; *five* sorts of earth; *five* precious stones, and *five* degrees of punishment. Seven is also distinguished. There are, they say, seven ruling heavenly powers, the sun, moon, and five planets; nine is also a ruling and efficient number.

Of their *language* we should be disposed to say but little in a work of science, did not the degree of light which has been thrown upon it of late years, reflect peculiar honor on Englishmen and English missionaries. The Jesuits had persuaded all Europe, to a very late period, that it was so strangely obscure as to require the devotion of a life to understand it for any useful purpose. 'We now know,' says Mr. Barrow, 'that a moderate degree of application for two or three years, with the assistance of a Chinese, will enable the student to write it with ease, to read and translate their most obscure books, and to transact every kind of business, commercial or political; and that this knowledge has opened up a vast fund of literature which, in Europe, was hardly suspected to exist. To Sir George Staunton, in the first place, he adds, to Dr. Marshman and his son, at Serampore, to Mr. Morrison, a Missonary at Canton, and to Mr. Davis, a promising youth in the East India Company's Factory at that port, we are more indebted for a true and distinct state of the laws, the language, the institutions, and literature of China, than to all the voluminous writings of the Jesuits, which, however curious and valuable in many details, are crowded with errors and exaggerations.'

We have noticed at some length, Sir George Staunton's contribution to our knowledge of Chinese jurisprudence. 'It was reserved' says the Quarterly Review, July 1814, 'for the missionary of Serampore (Dr. Marshman) to favor the European world with the first plain, simple, and intelligent introductory treatise of the Chinese language.' We cannot, therefore, better furnish the reader with a few plain ideas respecting this language than by offering him a short abstract of Dr. Marshman's Clavis Sinica, or Elements of Chinese Grammar: interspersed with an observation or two from other sources. It is a scarce 4to. volume printed at the Serampore Mission press; and sold, we believe, in this country for £5. 5*s*.

'That the Chinese,' says Dr. Marshman, 'is a singular language, will be readily acknowledged. But, although it differs widely in its principle from every alphabetical language, a thorough investigation of the subject will probably remove many of the mistakes hitherto entertained respecting it, and perhaps evince, that, though totally different in its nature, it is little less regular in its formation, and (were the means equally within our power) scarcely more difficult of acquisition, than Sungskrit, Greek, or even Latin. It may assist us in forming a just idea of this language, if we first examine the nature and formation of the characters,—then the sounds affixed to them; and afterwards their grammatical construction, or the manner in which they unite with each other in forming sentences.'

'These characters answer properly to the (written) words which compose other languages: no one of them forms a proposition; no one includes within itself the force of a noun and a verb, of a substantive and its adjunct, or an action and its object, in any other way than compound words in the Greek and the Sungskrit languages. However complicated any character may appear, still the compound, though it embrace six or seven characters, like compounds in Greek and Sungskrit, expresses only one idea, and still remains a substantive, an adjective, a verb, &c., as capable of union with other characters as the simplest character in the language. Nor is any difference of gender, number, or case, in the nouns; or of mood, tense, or person, in the verbs, expressed by any alteration in the character: these are all either inferred from the connection, or expressed, as in English, by certain auxiliary characters.

'The specific difference then between the

Chinese and other languages, lies wholly in the principle on which the characters or words are formed; these being formed in the latter by the union of the letters of the alphabet, in the former by the union of certain elementary characters, intended to represent the principal objects of sense.'

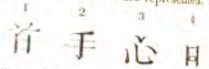
'These are in number 214, and consist of strong linear and angular strokes, which advance in number from one to fifty-two, and include every variety with respect to length, from the simple apex to the longest oblique stroke, as well as that variety of position, which results from the oblique, the horizontal, and the perpendicular. It is, however, worthy of remark, that circular forms are excluded. Whatever of this nature appears in any character, is merely fancy and embellishment, and no way essential to the meaning of the character. Nor does the thickness or fineness of the stroke alter the meaning, any further than as indicating, in certain cases, whether the stroke has been struck upwards or downwards: that circumstance, in several instances, forming the specific difference between two characters apparently alike in form.'

The elements then follow, in Dr. Marshman's Treatise, in the order they preservein the Imperial Dictionary. At the close of them he remarks,

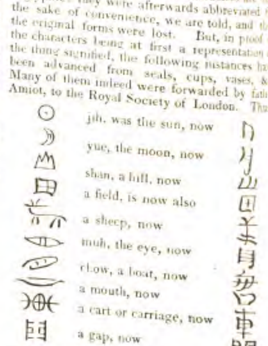
'These elements enter into the composition of all the characters of the Chinese language; every other character is said to contain at least one of these, and most of them are formed by the union of several, proceeding from one to seven or eight. Some of them, it is true, are abbreviated for the sake of facilitating their union with others, and in some of the compounds, a part of certain characters alone appears: but, in the greater number, every character may be distinctly traced, either in its proper or abbreviated form.

'Relative to the origin of the elements and the other characters,' continues Dr. Marshman, 'we are left almost entirely to conjecture. The invention of twenty-four elements which, void of meaning themselves, should yet constitute words, signifying, by compact, distinct ideas, according to Harris, has been esteemed so extraordinary, as almost to transcend the powers of the human mind. It is not easy to determine whether this mode of expressing ideas, or the imitative adopted by the Chinese, be the most ancient, but the latter seems more simple and obvious, and hence more within the reach of the human mind. However difficult it might be to invent and combine letters so as to form words which might convey ideas; that, when men wished to retain or convey to each other the idea of an object, it would be natural for them to trace in some rude manner an imitation or character, which might in their opinion serve to represent it, is evident, not only from the practice of travellers and others unacquainted with the principles of drawing, but even from that of children, who, in their juvenile frolics, often amuse themselves in thus attempting to pourtray objects which forcibly strike their attention.'

'The first efforts of this kind were probably attempts to delineate the objects of sense around. Whether such imitations would bear any likeness to the thing represented, is another question: that this would be intended, seems more than [illegible] but the resemblance should be in many cases so exact as of itself to denominate the object represented, is scarcely to be expected. Nor is any thing of this kind attempted to be affirmed respecting the elements. They are laid before the reader simply as elements; and every man will judge for himself respecting any real or imaginary resemblance between the *head*,[1] the *hand*,[2] the *heart*[3] the *mouth*[4] and the characters by which these are represented. Thus



However this may be determined in modern times, the Chinese historians it seems trace back the origin of these characters in successive editions of ancient books in a very remarkable way. Mr. Morrison quotes them as speaking of a person named Paou-she who compiled a work called Lah-hoo about the year of the world 2000, in which the greater part of the characters are hieroglyphic: they were afterwards abbreviated for the sake of convenience, we are told, and the original forms were lost. But, in proof of the characters being at first a representation of the thing signified, the following instances have been advanced from seals, cups, vases, &c. Many of them indeed were forwarded by father Amiot, to the Royal Society of London. Thus



jih, was the sun, now
yue, the moon, now
shan, a hill, now
a field, is now also
a sheep, now
muh, the eye, now
chow, a boat, now
a mouth, now
a cart or carriage, now
a gap, now
shevuy, water now
urh, the ear, now

'The Chinese themselves,' according to Dr. Marshman, 'divide the characters into six classes, the first three of which include those characters which in a qualified sense may be termed simple; and the last three regard the compound characters. The first efforts, as already observed, being unquestionably employed in attempting to form representations of visible objects, these form the first class, and are termed Syàng-hhìng, 'imitations or figures.' This class includes rather more than half the elements, and a few other characters which are more simple in their forms than some of the elements, though not ranked among them.'

'The second class in order points out the next step taken to extend this medium of communication. It is termed by the Chinese kyá-tsyèa, 'feigned or made,' and is said to apply the cha racters in a double sense. They adduce as examples of this, *ch'hang*,[5] long, wide, which, from signifying the length or extension of matter. was applied to denote length of time, &c.; and *ling*,[6] which from being originally used to denote order, command, was at length applied to signify the thing ordered or appointed, as shee-ling, the various parts of time ordered or appointed, that is, the mouths of the year. Of this kind is *tshee*,[7] an arrow, which from the straight course of an arrow, was used to signify direct, right, a word spoken directly to the point; and hence when combined with *khoú*,[8] a mouth, it forms *chee*,[9] knowledge; of which more hereafter. This advance seems to have created no new characters, but to have extended those already formed, by applying them in a metaphorical or figurative sense, as far as the objects they represented were capable of being thus applied. This class may therefore be termed the figurative.

5 6 7 8 9
長 令 矢 口 知

But this extension, though it enlarged their medium of intercourse, was in itself limited. A character which merely denoted length, could not without force be made to signify height; nor could one denoting command, be with propriety applied to signify depth. Necessity compelled them to advance another step, and gave rise to the forming of the third class, termed *Tcheè-sheè*, 'indicating the thing.' These characters, though not pictures of things, seem intended to suggest ideas to the mind from their form and position. As examples of this class, the Chinese adduce *shyang*,[10] above, and *hya*,[11] beneath, which they say were formed on this principle: admitting that *y h*,[12] a horizontal stroke, denotes the level or medium, by placing *yin*,[13] a man, above it, the idea is suggested of something above or superior: this character is used therefore to signify above or superior. On the other hand, by placing *yin*, a man, below this horizontal line, something below or inferior seemed indicated; this then is used to indicate inferior, below, &c.

10 11 12 13
上 下 一 人

The next step gave rise in all probability to the Compounds, a class of characters in their principle almost entirely new, and which with its modifications has brought the Chinese language to its present state. This class, which is the fourth in the Chinese series, is teamed *Hhooi-ee*, 'combination of idea,' and is formed by uniting two or more significant characters to produce another idea resulting from the meaning of its component parts. This step opened an extensive field to the Christian philologists, and gave birth to combinations of characters, some of them indeed simple and obvious even to us, but others arising from circumstances which at this distance of time are quite beyond our guess.

A fifth class they term *Chwán-chyù*, 'inverted in meaning,' and form it two ways; either by some slight alteration of a character, as the turning of a stroke to the left instead of the right; or by changing the name or the sound of a character.

Chinese ingenuity advances another step, and forms another class of compounds termed *Hhyai shing*, 'meaning and sound,' which they reckon the sixth or the last in the series. These are formed by adding to a character which denotes the genus or kind, another which denotes the imagined sound of the species or the individual signified.

Of the number of the Chinese characters taken together, which the Jesuits have stated at 70,000, or 80,000, Dr. Marshmans assures us that in the Imperial Dictionary, after repeatedly examining every page, he found the sum total to stand thus:

Characters in the body of the work . .	31214
Added, principally obsolete and incorrect forms of others	6423
Characters not before classed in any dictionary	1659
Characters without name or meaning . .	4200
	43496

Dr. Marshman also establishes this singular fact, that in the entire works of the celebrated Confucius there are scarcely 3000 different characters.

Our author, in the next division of his work, discusses the nature of the colloquial medium, which, being utterly unlike any other language, ancient or modern, he infers must have been in use before the invention of their characters—'as speech necessarily precedes writing.' To establish its claim to an original language, Dr. Marshman now examines the question how far it can be said to resemble the Hebrew and the Sanscrit, the two most ancient and only probable languages from which it could be derived. The Hebrew alphabet he finds to have *five* consonants which the Chinese have not, while the Chinese have *eight* not found in the Hebrew; *sixteen* probably may be deemed common to both. Then the Chinese language is purely monosyllabic, and the Hebrew polysyllabic; the latter might easily spring out of the former, but it is scarcely conceivable that a polysyllabic language could be cut down to a language wholly composed of monosyllables. The numerous inflections of the Hebrew verbs are totally incompatible with the unchangeable inflexible monosyllable, which is at once a noun indeclinable, and a verb not to be conjugated, which in itself is incapable of taking either number, case, or gender, mood, tense, or person. Not content with stating these discrepancies, Dr. Marshman examines the speech of Judah to Joseph, in the forty-fourth chapter of Genesis, which in the Hebrew contains 206 words, sixteen of which are monosyllables; but of these sixteen, seven only are found in the Chinese language, and these seven we apprehend, though he does not say so, are merely symphonious and not synonymous. Another passage of the Bible, Abraham's intercession for Sodom, is found to contain 230 words, of which *ten* only are monosyllables, and *four* of these are Chinese. But lest it should be objected that the two passages are too modern for the time when the Chinese language may be supposed to have been first formed, Dr. Marshman goes still farther back, and taking the maledictory prophecy of Noah, relative to his grandson Canaan, in twenty-six words he finds only *one* monosyllable; and he therefore concludes,—

if the Chinese formed their colloquial medium by selecting one word from twenty-nine, as in the first example, from fifty as in the second, or even one from twenty-six, of those they were in the habit of hearing every moment, the point is decided—invention itself seems easy compared with this labor. But if they did not derive their colloquial medium from the language of Noah and his sons, the alternative is, that they intended it wholly themselves.

The similarity of the Sanscrit alphabet with the Chinese system of sound is now adverted to, and that affinity established between them which only leaves it a question which gave birth to the other. Into this discussion we cannot here conduct the reader. Dr. Marshman thinks the balance of probability is that the Chinese was an original system.

Dr. Marshman's Elements establish this to be a most simple and inartificial language. It is wholly destitute of inflections; the collocation of the monosyllables determines the meaning of a sentence; and the mood, tense, number, and person, are denoted by prepositions and other particles in a similar way to those of our own language. Multitudes of words occur too, as in our language, which are used both as nouns and verbs without the least change; but the accompanying characters define them with certainty:—Dr. Marshman asks in conclusion, 'And now what is there in the language, besides its being unknown to us, which has arrayed it in all those terrors hitherto associated therewith? Does not each character convey a determinate idea as really as the words of the western languages? Is that position which supplies the place of grammatical terminations, and which must necessarily be fixed, more intricate and ambiguous than the terminations, and the inversion of sentences found in Latin? I grant that the Chinese written language is not only the Latin of Tonquin, Cochin-china, and Japan, but of China itself; and further, that it is wholly separated from conversation; for to this circumstance it owes that permanent perspicuity which has remained proof against the alterations in language arising from the lapse of ages, the revolutions of government, and the invasions of foreign enemies. Nay, I grant further, that a native Chinese studies the written language, and the ancient classics which it contains, for five or six years before he be judged qualified for public business. Still does not this last circumstance rather demonstrate the ease with which the language can be acquired? For, not to say that much of this time is employed in digesting the ideas contained in those ancient works, the Chinese student acquires the written language by study as we acquire Latin, yet does he apply a greater length of time to the study, than it costs an English youth to acquire a good Latin style? Would even a majority of the youth educated at our public schools, be found to have acquired a style sufficiently correct and copious for public business after studying Latin ten years? Yet no one deems a neat Latin style an impracticable attainment, much less that of reading the language with ease.'

Dr. Morrison's Dictionary of the Chinese language is another most important contribution to the stores of Oriental literature. Its ground-work is Kang-hi's Tsze-tëen, the Johnson's Dictionary of China: but this indefatigable missionary (who was appointed Chinese secretary, we observe, to lord Amherst) has also added from the various works of the Chinese and the Jesuits, as well as from his own long acquaintance with the language, many important examples and explanations. The characters are arranged according to the keys or radicals; immediately after the modern is placed the seal, then the ancient vase character, and finally the running hand character. 'And why,' says the Quarterly Review, in a very needful tone of remonstrance, 'are the works of those learned and indefatigable missionaries not advertised in the daily papers, like other books, that the nations of Europe may know what rapid advances have been made of late years in Oriental literature by our countrymen, the neglect of which had so long been their reproach!'

Both these learned missionaries have recently crowned their other labors in this language by complete translations of the Holy Scriptures. The Serampore version, which is the work of Dr. Marshman, was commenced in the year 1806; the New Testament was finished at press in 1817, and the last portion of the Old in April, 1822—the whole Bible, in five parts, 8vo., having thus occupied a period of about sixteen years. Since this great work was accomplished, the other translation we have mentioned has been completed by Drs. Morrison and Milne, in connexion with the London Missionary Society; so that now the Scriptures are provided for the great numbers of Chinese who are found visiting or residing in other parts of the Eastern world for the purposes of trade, and also for Christian missionaries who may enter China itself whenever God in his providence shall see fit to make that great empire accessible to them.

To the historical literature of the Chinese we shall have occasion to advert in the conclusion of this article. The great philosopher of the empire it is well known was Confucius, of whose works Dr. Marshman has published a translation, in a 4to. volume of 740 pages. He also gives a specimen of his maxims and style in his Ta-Hyot, appended to the Clavis Sinica. We extract the Important Doctrine.

1. The path or course of learning proper for men, consists in restoring reason to its pristine lustre; in renovating others; and in making the summit of all virtue the only point of rest.

2. When the mind knows its point of rest, it is decided; once fixed, it can enjoy tranquillity; and thus at ease, view all things around with complete self-possession, thence maturely weigh their nature and value, and finally attain (perfection in virtue).

3. Things in the vegetable world have a root, as well as branches and fruit; actions too have a consummation, and also a source whence they spring. He then who has formed a just idea of cause and effect, has made a near approximation to the path which leads to the summit of virtue.

4. The ancients who wished to restore reason to its due lustre throughout the empire, first regulated the province which they each governed;

desirous of governing well their own kingdoms, they previously established order and virtue in their own houses; for the sake of establishing domestic order, they began with self-renovation; to renovate their own minds, they first gave a right direction to their affections; wishing to direct their passions aright, they previously corrected their ideas and desires; and to rectify these, they enlarged their knowledge to the utmost. Now this enlargement of knowledge, consists in a most thorough and minute acquaintance with the nature of things around us.

5. A thorough acquaintance with the nature of things, renders knowledge deep and consummate; from hence proceed just ideas and desires; erroneous ideas once corrected, the affections of the soul move in a right direction; the passions thus rectified, the mind naturally obeys reason; and, the empire of reason restored in the soul, domestic order follows of course; from hence flows order throughout the whole province; and one province rightly governed, may serve as a model for the whole empire.

6. From the Son of Heaven even to the common people, one rule applies, that self-government is the root of all virtue.

7. That the right government of a kingdom should spring from a mind in a state of disorder, is impossible. To despise that which is most important (self-government), and esteem that alone which is light and secondary, is contrary to reason.

Nor can we forbear enriching this article with another specimen of the literature of this singular people in the following beautiful passage, quoted by Dr. Morrison, on the value of letters. 'When letters were invented, the heavens, the earth, and the gods, were all agitated. The inhabitants of Hades wept at night, and the heavens, as an expression of joy, rained down ripe grain. From the invention of letters the machinations of the human heart began to operate, stories false and erroneous daily increased, litigations and imprisonments sprung: hence also specious and artful language which causes so much confusion in the world. It was on these accounts that the shades of the departed wept at night. But from this invention of letters polite intercourse and music proceeded, reason and justice were made manifest, the relations of social life were illustrated, and laws became fixed; governors had a rule to refer to, scholars had authorities to venerate—and hence the heavens, delighted, rained down ripe grain. The classical scholar, the historian, the mathematician, the astronomer, none of them can do without letters; were there not letters to afford proof of passing events the shades might weep at noon day, and the heavens rain down blood.'

Poetry has been cultivated in China from an early period. The emperor Yao is said to have heard in his passage through the streets of the capital the following stanza in praise of his government, which is the first specimen of Chinese verse on record:—

Lih ngŏ ching min
Mŏh fy irr kih
Poŏh shih poŏh chee
Shuèn tĕĕ tchee tsĕh

The tranquillity we, the people, enjoy
Is wholly the fruit of thine exalted virtue;
No information or knowledge is needed;
All flows from the sovereign's wise institutions.

Another early specimen, including rhymes as well as measure, is a ko, or admonitory address to his children by the great Yu, who founded the Kya, the first dynasty of the three most ancient ones.

Nooì tsŏh sŭh hwang
Ngwài tsŏh khin hwang
Kan tsyen shù yin
Tsin yŭ tyao tsyang
Yĕu yih ya tsé
Wy hhoh poŏh wang

Within to be addicted to effeminate pleasures,
Without to the sports of the field;
To be fond of wine, of music,
Or of palaces elegantly adorned,
To delight in any one of these
Will be doubtless inevitable ruin!

In this stanza, each line contains four syllables, and the first, second, fourth, and sixth harmonise with each other.

The Shee (poetry of the highest kind), a collection of odes by Confucius, contain all the chief varieties of Chinese poetry. A great part of the odes are intended for recitation at the worship of paternal ancestors: some of these were written in the reign of Wooting, who ascended the throne B. C. 1323. Sometimes four, six, or even eight couplets in a stanza, end alike. We can only extract an Ode on Parting with a Friend.

Chhing shan kuring pŭh kwoh
Isé chyú yĕh ury pyĕh
Iyen yuen yeu tseé cè
Khwy shyen tsè khà
Pŭh shooí hyáo toong chhing
Koo p'hoong wàn leé ching
Lŏhyih koò yin tsing
Syao syao pan má ming

Where the verdant mountains encircle the city on the north,
And the limpid stream washes it on the east,
There did I once part with my beloved friend;
Now like the down of the phoong,* borne by the wind a thousand leagues.
His desire to proceed, irresistible as the flying cloud,
Mine to detain him, vain as the attempt to stay the setting sun;
Courteously waving the hand, he then went from me,
Our parting lamentation like that of the generous steed for his mate.

It is well known that the late emperor Kienlung wrote a tolerable poem upon Tea: Grozius's collection, according to the supplement of the Encyclopædia Britannica, contains the following far superior specimen of modern Chinese poetry. It might be entitled the Contented Bachelor. 'My palace is a little chamber, thrice my own length; finery never entered it, and neatness never left it. My bed is a mat, and the coverlid a piece of felt; on these I sit by day and sleep by night. A lamp is on one side, and on the other a pot of perfume. The singing of birds, the rustling of the breeze, the murmuring of the brook, are the only sounds which I hear. My window will shut, and my door open,—but to wise men only: the wicked shun it. I shave not like a priest of Fo; I fast not like the Tao-tsé. Truth dwells in my heart; innocence guides my actions. Without a master, and without a scholar, I waste not my life in dreaming of nothings, and in writing characters, still less in whetting the edge of satire, or in trimming words of praise. I have no views; no projects. Glory has no more charms for me than wealth; and all the pleasures of the world cost me not a single wish. The enjoyment of ease and solitude is my chief concern. Leisure surrounds me, and bustle shuns me. I contemplate the heavens and am fortified. I look on the earth and am comforted. I remain in the world without being in it. One day leads on to another, and one year is followed by another; the last will conduct me safe to port, and I shall have lived for myself.'

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* A plant resembling worm-wood, which produces a downy seed.

Lord Macartney and his companions were entertained with various exhibitions of the Chinese drama. They were both tragical and comic, partly recitative, partly sung, and partly in plain prose, but without music. They abounded in battles, murders, and most of the usual incidents of the drama. Mr. Ellis, however, speaks of the exhibition he saw, a kind of melo-drama, as accompanied with instrumental music, which, from its resemblance to the bag-pipe, might have been tolerated by Scotchmen, to others it was detestable. Of the same description was the singing. On a second occasion he says, '16th January 1817; a dinner and sing-song, or dramatic representation, were given this evening to the ambassador by Chunqua, one of the principal Hong-merchants. The dinner was chiefly in the English style, and only a few Chinese dishes were served up, apparently well dressed. It is not easy to describe the annoyance of a sing-song, the noise of the actors and instruments (musical I will not call them) is infernal, and the whole constitutes a mass of suffering, which I trust I shall not again be called upon to undergo. The play commenced by a compliment to the ambassador, intimating that the period of his advancement in rank was fixed, and would shortly arrive. Some tumbling and slight of hand tricks, forming part of the evening's amusements, were not ill executed. Our host, Chunqua, had held a situation in the financial department, from which he was dismissed for mal-administration. He has several relations in the service, with whom he continues in communication. His father, a respectable looking old man, with a red button, assisted in doing the honors. With such different feelings on my part, it was almost annoying to observe the satisfaction thus derived by the old gentleman from the stage. Crowds of players were in attendance, occasionally taking an active part, and at other times mixing with the spectators,—we had both tragedy and comedy. In the former, emperors, kings, and mandarins, strutted and roared to horrible perfection, while the comic point of the latter seemed to consist in the streak of paint upon the buffoon's nose. The female parts were performed by boys.

Their *musical* instruments are described as consisting of, 1. The sound of skin, produced by drums. 2. That of stone produced by the *king*. 3. The sound of mettle by bells. 4. That of baked earth by the *huien*. 5. Of silk by the *kin* and *che*. 6. Of wood by the *yu*, and *tchu*. 7. Of the bamboo by the *koan*, and different flutes. 8. That of a gourd by the *cheng*. The drums were originally composed of a box made of baked earth, and covered at the extremities with the skin of some animal; but on account of the brittleness of baked earth, wood was soon substituted in its stead. Great part of these instruments are shaped like our barrels, but some are cylindric. The instruments formed of the sonorous stones are called KING, distinguished into *tse-king* and *pien-king*. The TSE-KING consists only of one stone, and therefore produces only one note. The PIEN-KING consists of sixteen stones suspended together, and thus forming an instrument capable of producing all the tones admitted into the music of the ancient Chinese. They are cut into the form of a carpenter's square; their tone is flattened by diminishing their thickness, and is made sharper by abridging their length.

The bells in China have always been made of a mixture of tin and copper. They are of different shapes, and those of the ancients were not round, but flatted, and in the lower part resembling a crescent. An instrument, corresponding to the *king* already mentioned, is composed of sixteen bells of different sizes. Some of their bells, used on public occasions, are of enormous magnitudes. One at Pekin is described as thirteen feet and a half in diameter, twelve feet and a half in height, and forty-two in circumference; the weight being upwards of 120,000lbs. It is used for announcing the watches of the night; and its sound, which is prodigiously loud and strong, has a most awful effect, by reverberating the echo of the surrounding country. There are several others likewise of vast size in the same city, one of which is greatly admired for the beautiful characters with which it is covered, and which are as neat and perfect as if traced out by the hand of the finest writer, or formed by a seal upon wax. F. le Comte tells, that in all the cities of China there are bells for marking the hours and the watches of the night. They generally divide the night into five watches, beginning at seven or eight in the evening. On the commencement of the first they give one stroke, which is repeated a moment after; and thus they continue for two hours till the beginning of the second: they then give two strokes, which are repeated at equal intervals till the beginning of the third watch, and thus they proceed to the fourth and fifth, always increasing the number of the strokes. For the same purpose also they use enormous drums, which they beat in a similar manner. Magaillans mentions one at Pekin upwards of forty feet in circumference. The instrument called *hiuen*, which is made of baked earth, is highly esteemed by the Chinese on account of its antiquity. It is distinguished into two kinds, the great and small; the former being of the size of a goose's egg; the latter that of a hen's. It has six holes for the notes, and a seventh for the mouth. The *kin* and *tche* have been known from the remotest antiquity. The former has seven strings made of silk, and is distinguished into three kinds dif fering only in size. The body is formed of a kind of wood varnished black, and its whole length is about five feet five inches. The *tche* is about nine feet in length, has twenty-five strings, and is divided into twenty-five kinds. F. Amiot says, that we have no instrument in Europe which deserves to be preferred to it. The instruments which emit the sound of wood are the *tchou*, the, *yu*, and the *tchoung-tou*. The first is shaped like a bushel, and is beaten on the inside with a hammer; the second, which represents a tiger squatting, is made to sound by scraping its back gently with a rod; the third is a collection of twelve pieces of board tied together, which are used for beating time, by holding them in the right hand, and knocking them gently against the palm of the left. Other instruments are constructed of bamboo pipes joined together, or separate, and pierced with more or fewer holes.

In both the fine and useful *arts* the Chinese occasionally evince very superior skill. While in their paintings they seem to be wholly ignorant of perspective, and are, perhaps, only to be considered at any time as skilful imitators, no European artist, it is said, can excel their representations of individual objects. A flower and a leaf has every shade and streak most faithfully copied, at whatever supposed distance in the picture: their birds, fish, reptiles, and insects, are also well known to be most beautifully executed.

Their sculpture is a manufacture of godships, which is sufficiently extensive to ensure excellence, but in which superstition has, of course, more dominion than taste. Their human figures, (generally short and thick) are always clothed, and are better formed in wood than either in metal or porcelain. Mr. Ellis visited a small temple at Khu-shee-yoo, to the god of fire, 'a short figure seated on a throne,' he says, 'holding a drawn sword in one hand, and a serpentine ring in the other: two dwarf like figures stood near him, each with rings: three other figures less perfect adorned the sides of the building.' This gentleman describes a representation of the god Fo, which he saw at Sang-quen, with eight arms, as exactly similar to the idols of the Hindoos. Several colossal figures were near him, which were said to be statues of distinguished mandarins; one had a hammer in his hand, which would justify a conjecture, he suggests, that statues are sometimes erected here to the inventors of useful arts. At Kao-ming-zee is a miao, or temple, under the special protection of the emperor, with three colossal figures of Fo, representing nis trine manifestation. 'The present Fo occupied the centre; his head-dress was a turban; the other two wore crowns. Immediately before these figures was a tablet bearing an inscription, praying for the eternity of the emperor's happiness.' The high priest, says our traveller, in his robe, cap, and rosary, forcibly reminded him of the priests of the catholic religion; while his figure was singularly squat and rotund, like that of the deity he served. Fo is said to be usually represented as extremely fat.

In their *architecture* the Chinese are inferior to many of their Indian neighbours. Pagodas are seen to reach six, seven, or eight stories high; but all the houses and palaces of their most opulent cities are low, and constructed on the models of a patriarchal tent. The materials also are very slight, consisting generally of half burnt bricks and wood. The Jesuits have ascribed this to the general horror of earthquakes, of the ravages of which most disastrous accounts are given in the Chinese annals. Their bridges, of which frequent imitations are seen in Europe, are the most creditable exhibitions of their architecture. Pillars of wood roofed over, and forming a kind of triumphal arch, with a triple way beneath, are amongst the objects on the roads that also frequently strike the eye. They are gilt and varnished profusely, and are devoted to the honor of some chaste virgin, or noble warrior. We have noticed how numerous they are at Nankin.

The interior accommodations of their houses are, however, superior among the middle and lower classes: they are, perhaps, equalled in no other country of the world.

Their cooking utensils, books and furniture, are all excellent, and stoves for warming the rooms are common. The immense majority of the population are fed from tables, seated on chairs, and clothed with good cotton garments from head to foot.

The great wall which separates China from Tartary is said to extend more than 1500 miles in length, and was originally of such thickness that six horsemen might ride abreast upon it. Its numerous towers have no strength as fortresses; nor is there anything of importance of this kind throughout the empire. They are always square towers about a bow-shot distance from each other. It is said traditionally that a third of the able-bodied men in the empire were employed in constructing this wall, and that they were ordered, under pain of death, to place the materials so closely, that not the least entrance might be afforded for any instrument of iron. This extraordinary work is carried not only through the low lands and valleys, but over hills and mountains; the height of one of which was computed by F. Verbiest at 1236 feet above the level of the spot where he stood. According to Martini it begins at the gulf of Lea-tong, and reaches to the mountains near the city of Kin on the Yellow River; between which places it meets no interruption except to the north of the city of Suen in Pecheli, where the country is crossed by a ridge of inaccessible mountains, to which it is closely united. It is likewise interrupted by the river Hoang-ho; but, for others of an inferior size, arches have been constructed, through which the water passes. The foundation consists of large blocks of stone laid in mortar; but all the rest is of brick. The greater part is so strong and well built that it scarcely needs any repairs; and, in the dry climate in which it stands, may remain in the same condition for many ages. When carried over steep rocks, where no horse can pass, it is about fifteen or twenty feet; but when running through a valley, or crossing a river, full thirty feet high. The top is flat, and paved with cut stone; and, where it rises over a rock or eminence, there is an ascent made by an easy stair. It was completed, according to the Chinese accounts, B. C. 215, in five years; and the materials, if they were solid masonry, are said to be sufficient to girt the earth at the equator with a wall six feet high and four feet thick. According to the information given to the gentlemen of the first English embassy by Van-ta-Zhin, a distinguished officer, the total of the army in the pay of China, including Tartars, amounted to 1,000,000 infantry, and 800,000 cavalry. From the observations of the embassy, in their travels through the empire, of the garrisons in the cities of different ranks, and of the military posts at small distances from each other, there seemed nothing improbable in the calculation of the infantry; but they observed few cavalry; and in crediting the existence of such a number it must be supposed, that a great proportion of them were in Tartary, or on some service distant from the route. Their pay amounts to about 2½*d* and a measure of rice per day, though some of them have double pay. The pay of a horseman is double that of a foot soldier; the emperor furnishes a horse, and the horseman receives two measures of small beans for his daily subsistence; the arrears of the army being punctually paid up every three months. The arms of a horseman are, a helmet, cuirass, lance and sabre; those of a foot soldier are a pike and sabre; some have fusees, and others bows and arrows. All these are carefully inspected at every review; and if any of them are found in the least rusted, or otherwise in bad condition, the possessor is instantly punished; if a Chinese, with thirty or forty blows of a stick; or, if a Tartar, with as many lashes. Though the use of gunpowder is certainly very ancient in China, it appears to have been afterwards totally lost; at least fire arms seem to have been almost entirely unknown some centuries ago. Three or four cannon were to be seen at that time about the gates of Nankin; but not a single person in China knew how to make use of them; so that, in 1621, when the city of Macao made a present of three pieces of artillery to the emperor, it was found necessary also to send three men to load them. The utility of these weapons was quickly perceived by the execution which the three cannon did against the Tartars, at that time advanced as far as the great wall. When the invaders threatened to return, the mandarins of arms gave it as their opinion, that cannons were the best arms they could make use of against them. They were then taught the art of casting cannon, by F. Adam Schaal and Verbiest, two Jesuit missionaries, and their artillery was increased to the number of 320 pieces; at the same time that they were instructed in the method of fortifying towns, and constructing fortresses and other buildings, according to the rules of modern architecture. There are in China more than 2000 places of arms; and through the different provinces there are dispersed about 3000 towers or castles, all defended by garrisons. Soldiers continually mount guard there; and on the first appearance of tumult, the nearest sentinel makes a signal from the top of the tower, by hoisting a flag in the day, or lighting a torch in the night; when the neighbouring garrisons immediately repair to the place where their presence is necessary. All expresses are forwarded from post to post by the soldiery, and numbers are constantly employed as police officers.

Mr. Ellis gives the following description of their recent appearance and equipments. 'Abreast of our boat, opposite a party of soldiers drawn out to do honor to his excellency, gave me an opportunity of examining them with a little attention. They were, to use a military phrase, of all arms, match-locks, bows and arrows: shields, and quilted breast-plates. Their bows are shaped like the Persian bow, that is not a continued arc; but unlike the latter it requires little strength to draw them: their arrows are deeply feathered, more than three feet long, with a pointed blade at the end, not barbed. Chinese match-locks are the worst I have ever seen: originally of ill construction, they are kept in such bad order that they must become perfectly useless. The swords are short and well shaped, being slightly curved, and do not seem bad weapons. The bow-string rests against the thumb, and for that purpose a broad ring of bone or some hard substance is worn to protect the skin. The appearance of the strangely drest soldiers already mentioned, who may be called the monsters of the imperial guard, is most ludicrous: the colors of the dress are such as I have before described; the dress itself is divided into a loose jacket and trowsers: some of the party had a colored cloth wrapped like a scanty clout round their heads: they hold their capacious shields in front, close to their breasts, and allow a few inches of their rusty blades to appear above it. The principal officer on duty wore a blue button. Such is the superiority of civil over military rank in China, that a civil mandarin with a white button often takes precedence of the military coral.' In another place he says, 'the troops in each province in China are levied within it; the government assuming as a principle that men will defend their homes with more determination than strangers. The banners of the Tartars may therefore be considered the disposable force of the empire. The provincial troops may perhaps be considered as a military police, and the circumstance of their being levied within their respective provinces, accounts for the regulations respecting mandarins not holding office in their native province being confined to those of the civil order. Enrolment in the Chinese army is voluntary, and the pay is so good, that the service is much desired.

'At Tsong, we observed, says he, two soldiers returning to the guard house, in dresses studded with brass knobs to imitate armor; they had cuirasses of steel, their helmets also were of polished steel, with inlaid work of a darker hue, in these were fixed plumes two feet long, red and brown, the former hair, as on the Mandarins' bonnets, and the latter fur; their arms were swords, bows, and arrows, the dress was altogether handsome and martial.'

In their *naval architecture*, and tactics, the Chinese have made no progress since their first intercourse with Europeans. The commercial passage boats and barges are convenient, especially those in use on the grand canal, but even to the number and capacity of their holds, they are the same kind of vessels described in the thirteenth century by Marco Paulo; and bamboo sails and ropes, and wooden anchors were then, as now, their general mode of equipment. They have a military kind of flotilla, scarcely worth mentioning, which is used to repress smuggling; a single English frigate, Mr. Barrow says, would destroy all the naval force of the empire.

We have noticed, in our article ARITHMETIC, the early proficiency of the Chinese in that science, but it clearly has never extended to its profounder parts. Their notation is accomplished by symbols, and the common operations of commerce are performed by the use of the swan-pan, a kind of abacus. Quantity is measured by reducing the surfaces and sides to square and cubic measure, and then multiplying them into each other.

In *astronomy* the French missionaries have loudly proclaimed the attainments of this people. But modern investigation seems to have realised little of truth in their statements. Their system closely resembles that of the Hindoos. The zodiac is divided into twelve signs, and twenty constellations or houses of the moon. The same period, a cycle of sixty years, regulates their chronology, and during a period of 10,800 years astronomical observations are said to have been made by their ancestors. Freret describes a celestial chart, constructed in China about the sixth century of our era, on which were inserted 1460 stars, sufficiently near their proper places to be recognised; and their own annals state that, A.D. 718, an Indian astronomer of the name of Koo-tan, having brought from the west a treatise on astronomy, was employed at court to translate it into Chinese: they also celebrate the patronage afforded to this science by Kub-lai-Khan.

Since his reign the board at Pekin, to which is entrusted the formation of the public almanac, has been assisted constantly by Armenians, Hindoos, and even Christians, in their calculations. Their geographical knowledge is said to be limited to the immediate borders of their own country: but Java, Sumatra, Ceylon, and Borneo, are frequently alluded to in their annals.

A public book of ceremonies directs the *education* of a child to commence as soon as it is born, and describes the qualities which its nurse ought to have. She must speak little, adhere strictly to truth, have a mild temper, behave with affability to her equals, and with respect to her superiors. The child is taught to use the right hand as soon as it can put its hand to its mouth, and then it is weaned. At six years of age, if a male, he is taught the numbers most in use, and made acquainted with the names of the known parts of the world; at seven he is separated from his sisters, and no longer allowed to eat with them, nor to sit down in their presence; at eight he is instructed in the rules of good breeding and politeness; at nine he studies the calendar; at ten he is sent to a public school, where he learns to read, write, and cast accounts; from thirteen to fifteen he is taught music, and every thing that he sings consists of moral precepts. It was formerly the custom, that all the lessons designed for the Chinese youth were in verse; and it is to this day lamented, that the same custom is not followed, as their education has since been rendered much more difficult and laborious. At fifteen, the Chinese boys are taught to handle the bow and arrow, and to mount on horseback; at twenty they receive the first cap, if they are thought to deserve it, and are also permitted to wear silk dresses ornamented with furs; but before that period they are not allowed to wear any thing but cotton. Another method of initiating children into the principles of knowledge in this empire is, by selecting a number of characters expressive of the most common objects, engraving or painting them separately on some kind of substance, and, under the thing represented, putting the name, which points out to the children the meaning of the word. The book first put into the hands of children is a collection of short sentences, consisting of three or four verses each, in rhyme; and they are to give a regular account in the evening of what they have learned in the day. After this elementary treatise, they put into their hands the four books which contain the doctrines of Confucius. Writing is said to be taught by means of large leaves of paper, on which are written or printed, with red ink, immense characters; and these are required to be covered with black ink, following exactly their shape and figure. After this they are made to trace smaller characters designed in black, and placed under the paper on which they write. Great pains is taken in forming the hands of young people. After the scholar has made himself master of the characters, he is allowed to compose; but the subject is pointed out to him only by one word. Competition is excited by twenty or thirty families agreeing among themselves to send their children twice a month to the hall of their ancestors to compose. Each head of a family in turn gives the subject of this literary contest, and adjudges the prize. A fine of about ten pence is imposed on the parent of each scholar who absents himself from superintending this exercise, and every student is obliged to compete at least twice a year, under the inspection of an inferior mandarin of letters, styled Hio-kouan. The mandarins often order the students to be brought before them, to examine the progress they have made. Even the governors of cities order students, who reside near them, to appear before their tribunal once a month. The author of the best composition is honored with a prize, and the governor feasts all the candidates at his own expense. The education of the women is confined to giving them a taste for solitude, and accustoming them to modesty and silence; if their parents are rich, they are likewise instructed in such accomplishments as may render them agreeable to the other sex. Free schools are very numerous in every province, and even in some of the villages. Private tutors are common among the better ranks.

It is remarkable that no application of mechanics to time-keeping has been made here; and that even the common pump was never used before the Jesuits introduced it. The Persian wheel, and a large wheel having bamboo tubes on its rim, were the only hydraulic instruments known. Their medical knowledge is also mere quackery; and their surgery is practised by the barbers.

The emperor Kaung-hee, says Mr. Barrow,

soon convinced himself that several of the Jesuits were better skilled in medicine than his own physician. At first, however, he had some scruples, upon being attacked by a fever, in following his advice. Three of the first physicians to the court, dissuaded him from taking a medicine, of whose qualities they professed themselves ignorant, and advised him to let the disease go on, that they might discover its true character. The emperor, however, at last took the Peruvian bark which the Jesuits had prescribed, and soon recovered; but the several officers who had similar fevers, were first ordered to take the bark, and finding it at least harmless, he then ventured upon it himself. As ignorance is a crime in the eyes of the ignorant, it is more especially so at the court of China, and made capital in those to whom the life of the sovereign is entrusted. The three physicians were therefore delivered over to the criminal court, who condemned them to death; but Kaung-hee mitigated the punishment to that of exile, and rewarded the Jesuits with a house in Pekin, and contributed largely towards the building of a church. The Chinese are said to be very subject to leprosy and cutaneous diseases.

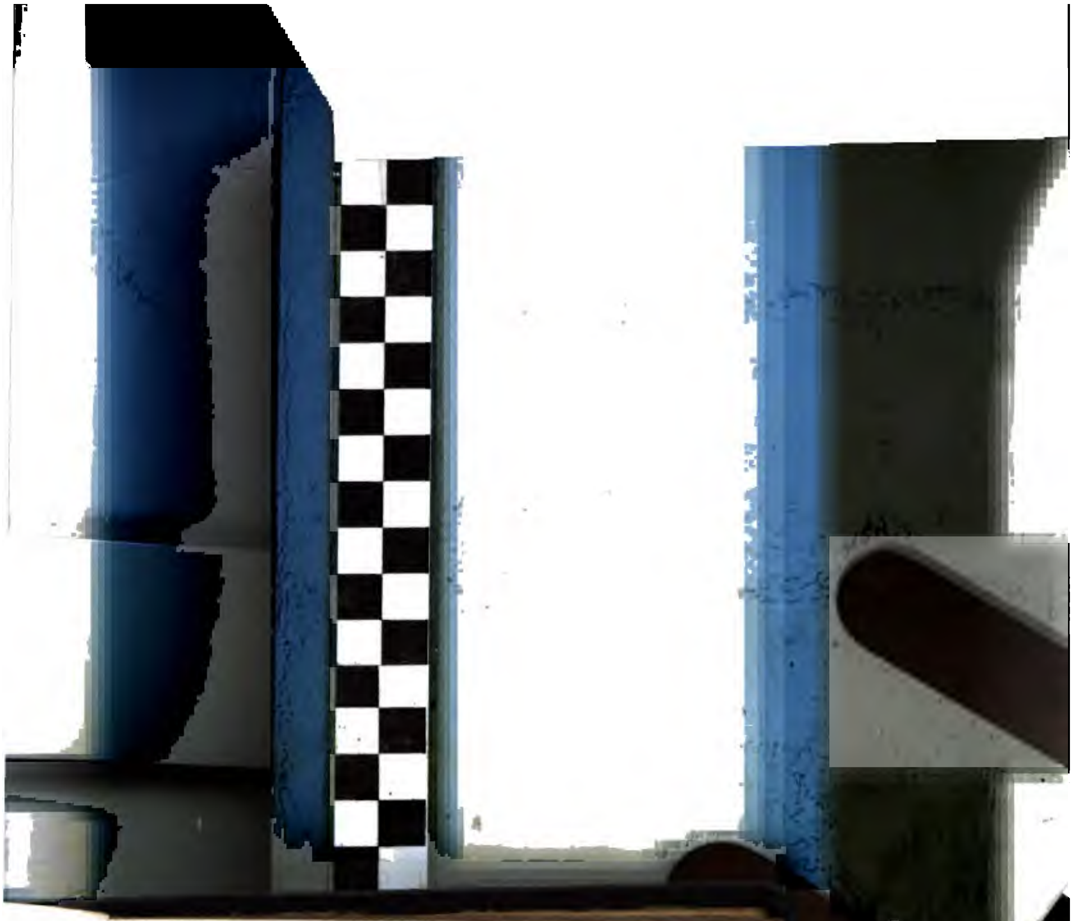
They are expert *engravers* on silver, copper, and wood; they are also good lapidaries; and carve beautifully on ivory. In silver fillagree, cabinets, lacquered and plain, tortoise-shell ornamented works, &c. they are nowhere surpassed. Their silk twisted-cords, tassels and embroidery, are also very superior, as well as their ink, paper, and printing. The last is exceedingly different from ours. The whole work which they intend to print, is engraved upon blocks of wood; and their method of proceeding is as follows: They first employ an excellent writer, who transcribes the whole on very thin paper. The engraver glues each of the leaves of the MS. upon a piece of plank of any hard wood: he then traces over with a graver the strokes of the writing, carves out the characters in relief, and cuts down the intermediate part of the wood. Thus each page of a book requires a separate plank; and the excessive multiplication of these is, no doubt, a very great inconvenience, one chamber being scarcely sufficient to contain those employed for a single book. But the advantages are, that the work is thus remarkably free from typographical errors, and the author (happy country!) has no occasion to correct the proofs. In this method the beauty of the work depends entirely on the skill of the writer previously employed. No press is used as in Europe, as neither their wooden planks nor their soft paper could sustain so much pressure. They first place the plank level and then fix it in that position. The printer is then provided with two brushes, and, with the hardest, covers the plank with ink; and one operation of this kind is sufficient for four or five leaves. After a leaf has been adjusted upon the plank, the workman takes the second brush, which is softer than the former, and of an oblong figure, and draws it gently over the paper, pressing it down a little that it may receive the ink. The degree of pressure is regulated by the quantity of ink upon the plank; and thus one man is said to be able to throw off eight or ten thousand copies a day. The leaves are generally printed only on one side; on which account each leaf of a book is double; so that the fold stands uppermost, and the opening is towards the back, where it is stitched. Hence the Chinese books are not cut on the edges, but on the back. They are generally bound in gray pasteboard, very neatly: those who wish to have them elegantly finished, have the pasteboard covered with satin, flowered taffety, or gold and silver brocade.

Dr. Marshman, at Serampore, first printed in this language with moveable types, which is a very great saving of expense, as compared with the Chinese method; and Dr. Morrison, during his late visit to England, was very laudably engaged in encouraging the type-founders of the metropolis to produce specimens of these difficult characters in the ordinary type metal. We are favoured by one of them (Mr. Figgins) with the following very successful attempt of this kind; and we have before us Dr. Morrison's own handsome acknowledgment of its elegance and correctness. The characters were cut by Mr. V. Figgins, jun. under the direction of Mr. Thoms, printer of Dr. Morrison's Chinese Dictionary.

THE LORD'S PRAYER.

吾父在天者、爾名成聖、爾王
至來、爾旨得成于地如在天
然。賜吾每日吾日用糧。免吾
罪、蓋吾亦免負我者。勿引吾
進誘惑。惟救我于凶惡。

In extracting *dyes* of various colors, particularly the brighter ones, from animal and mineral substances, no nation has equalled the Chinese. Their vermilion and blues are particularly brilliant; and their entire porcelain manufacture, it is well known, is unrivalled in Europe. The finest is made in a village called King-te-ching, in the province of Kiang-si. Manufactories have also been erected in Fo-kien and Canton, but their produce is not esteemed; and one which the emperor caused to be erected at Pekin, miscarried entirely. The Chinese divide it into several classes, according to its different degrees of fineness and beauty. The whole of the first is reserved for the use of the emperor, so that



none of it ever comes into the hands of other persons, unless it happen to be cracked or otherwise damaged. There is some doubt, therefore, whether any of the finest Chinese porcelain was ever seen in Europe. The use of glass is very ancient in China, though it does not appear that great value was ever put upon this kind of ware, the art of manufacturing it having been frequently lost and revived again. The same indifference with regard to it is still entertained. However, a glass-house is established at Pekin, where a number of vases, &c. are made; but none are blown. This manufactory, as well as many others is considered as an appendage of the court; and the art of manufacturing silk, according to some authorities, was communicated by the Chinese to the Persians, and from them to the Greeks. This art has been known in this empire from the remotest antiquity; and the breeding of silk-worms, and making of silk, was anciently one of the employments of the empresses. The most beautiful silk in the whole empire is that of Tche-king, wrought in the manufactories of Nankin. From these are brought all the stuffs used by the emperor, and such as he distributes in presents. A great number of excellent workmen are also drawn to the manufactories of Canton by the commerce with Europe and other parts of Asia. Here are manufactured ribands, stockings and buttons. The quantity of silk produced in the whole empire seems to be inexhaustible; the internal consumption alone being incredibly great, besides that which is exported in the commerce with Europe and the rest of Asia. All who possess a moderate fortune wear silk clothes. The principal manufactured stuffs are plain and flowered gauzes of which they make summer dresses; damasks of all colors; striped and black satins; napped, flowered, striped, clouded, and pinked taffeties; crapes, brocades, plush, different kinds of velvet, and a multitude of other stuffs unknown in Europe. They make particular use of two kinds; one named touan-tse, a kind of satin, much stronger, but which has less lustre than that of Europe; the other a kind of taffety, of which they make drawers and linings. It is woven exceedingly close, and is yet so pliable, that it may be rumpled and rubbed between the hands without any crease; and even when washed like cotton cloth, it loses very little of its lustre. They manufacture also gold brocades of such a slight nature, that they cannot be worn in clothes: they are fabricated by wrapping fine slips of gilt paper round the threads of silk.

The public revenues, according to accounts received by Sir G. Staunton, amount to nearly 200,000,000 ounces of silver, which may be equal to about £66,000,000 sterling. From the produce of the taxes, all civil and military expenses are first paid upon the spot, out of the treasuries of the respective provinces where such expenses are incurred; and the remainder is remitted to the imperial treasury at Pekin. The surplus amounted in the year 1792, according to an account taken from a statement furnished by Chow-ta-zhin, to the sum of 36,614,328 ounces of silver, or £12,204,776. The annual expenses of government are large, but they are regulated in such a manner as never to be augmented, except in cases of the utmost necessity; it even happens very often that administration makes great savings. The surplus, in such cases, encreases the general treasure of the empire, and prevents the necessity of new impositions in time of war, or other public calamities. The greater part of the taxes are paid in kind; those, for instance, who breed silk-worms, pay their taxes in silk, the husbandmen in grain, the gardeners in fruits, &c. and thus the servants of government are furnished with food and clothing; the remainder only being sold, and the produce sent to the emperor. The taxes paid in money arise principally from the customs, and the sale of salt (which belongs entirely to the emperor), from the duties paid by vessels entering any port, and from imposts on various manufactures. The taxes upon the husbandman are regulated in proportion to the extent and fertility of his lands; and the greatest care has been taken to manage matters so that he may neither be overcharged in the imposition, nor harassed in the levying of the duties. Yet the land-tax forms a very considerable portion of the public revenue. All the receipts are subjected to the examination of the grand tribunal of finances. This revises the whole, and keeps an exact account of what is consumed, and of whatever surplus may be left.

Dr. Morrison calculates from the Y-tung-che, the Chinese Encyclopædia, that the value of the imports of China is about 36,000,000 learg, of 6*s.* 8*d.* each, or £12,000,000 British sterling. No country upon earth is better situated for commerce, or has more internal facilities; but the jealousy of all the public authorities has wholly precluded the cultivation of its great resources in this respect, except through Canton. Here the English and Americans are their great customers; our trade being for the greater part a monopoly conducted by the East India Company. There is a considerable 'country trade,' as it is called, between the ports of British India (direct) and Canton. The business, on the part of the Chinese, is conducted entirely by certain traders, called after their warehouses, hong-merchants, to whom, on their arrival, all cargoes are consigned, and who are made responsible by the government for all the dealings and behaviour of foreign crews. They prepare also, and supply, the return cargo. No foreign vessel, however, is allowed to approach the city nearer than Whampoo, about fifteen miles from the mouth of the river, which is here about as broad as the Thames at the Custom House: on the bank of a noble quay are here erected the hongs of each nation. The duty paid to the public treasury is here levied on each ship in the gross bulk of her cargo, and in a manner truly original. She is measured from the centre of the foremast to that of her mizen, and the breadth is taken close abaft of the main mast. The length being now multiplied by the breadth, and the product divided by ten, this is supposed to give the size of the vessels. The articles sent to China by the East India Company, are broad and long cloths, furs, camblets, copper, tin, and lead; but broad-cloth principally, the value of which sometimes amounts annually to £1,000,000 sterling. The return cargoes chiefly consist of tea, of which from 24,000,000 to 30,000,000 lbs. are taken in here for England. We subjoin

BRITISH TRADE WITH CHINA.

We lay before our readers an Abstract, showing the amount of the principal articles of Import and Export on British account during the year ending the 31st of March, 1832.

Imports.	Piculs.	Exports.	Piculs.
Betelnut	6,591	Nankin raw silk	6,283
Rattans	6,349	Canton	2,168
Pepper	15,771	Sugar	60,627
Sandalwood	6,338	Sugar candy	32,279
Saltpetre	7,068	Cassia lignea	7,096
Olibanum	550	Ditto buds	614
Sharks' fins	3,010	Mother-of-pearl shells	2,235
Putchuck	460	Rhubarb	763
Fish maws	1,075	Alum	20,476
Rice	51,496	Camphor	279
Iron	38,705	Star aniseed	477
Steel	2,101	Cochineal	144
Lead	29,954	Copper (South American)	4,610
Tin	5,032	Nankeen cloth pieces	315,570
Cotton Yarn	4,852	Treasure in broken Sycee and South American silver; to London	*Sp. dollars.* 1,976,930
Tin plates, boxes	2,525	Calcutta	340,340
White cotton piece goods	65,298	Bombay	1,577,543
Broad cloth	141,762	Sundry places	77,000
Long ells	140,000	Total	3,971,813
Camlets	14,621		
Cotton, Bengal	104,244		
Ditto Bombay	324,281		
Ditto Madras	4,543		

An ACCOUNT of the QUANTITY of TONNAGE, the VALUE and AMOUNT of the BULLION and CARGOES IMPORTED, and of the QUANTITY and VALUE of TEAS EXPORTED, by the AMERICANS, in their trade with the Port of CANTON, for the years 1816-19, specifying the quantity exported by them direct to the United States, and that shipped direct for Europe.—(From the Appendix to the Lords' Report, 1821.)

Seasons.	Tonnage annually employed by the Americans	Amount of Bullion and Cargoes imported by the Americans.			Teas exported by the Americans.	Value of the same.	Teas exported by the Americans.	
		Bullion.	Merchandize.	Total Value and Amount.			For Europe.	For the United States.
	Tons.	*Dollars.*	*Dollars.*	*Dollars.*	*lbs. weight.*	*Dollars.*	*lbs. weight.*	*lbs. weight.*
1815–16	10,208	1,922,000	605,500	2,527,500	7,245,290	no value stated.	2,731,010	4,514,280
1816–17	13,096	4,545,000	1,064,600	5,609,600	8,954,100	ditto	2,880,000	6,074,100
1817–18	14,325	5,601,000	1,475,828	7,076,828	9,622,130	3,290,439	2,086,245	7,535,885
1818–19	16,022	7,414,000	2,603,151	10,017,151	11,988,649	3,457,256	3,103,651	8,884,998

The disputes concerning the limits of Russia and China, first paved the way to commerce between those countries. These disputes were settled by treaty on the 27th August, 1689, in the reign of John and Peter Alexiowitz. The chief of the embassy on the part of Russia was Golovin, governor of Siberia; two Jesuits were deputed on the part of the emperor of China; and the conferences were held in Latin, with a German in the Russian ambassador's train, who was acquainted with that language. By this treaty the Russians obtained a regular and permanent trade with China, which they had long desired; but in return they yielded up a large territory, besides the navigation of the river Amour. The first intercourse had taken place in the beginning of the seventeenth century; at which time a small quantity of Chinese merchandise was procured by some Russian merchants from the Kalmuck Tartars. The rapid and profitable sale of these commodities encouraged certain Siberian Waywodes to attempt a direct and open communication with China. For this purpose several deputations were sent to the emperor; and though they failed of obtaining the grant of a regular commerce, their attempts were attended with some consequences of importance. Thus the Russian mèrchants were tempted to send traders to Pekin; and obtained, in 1692, leave to despatch a caravan thither. The Mogul desert, on the frontier, ultimately became the seat of an annual fair. Complaints, however, were soon made of the disorderly behaviour of the Russians; on which the Chinese monarch threatened to expel them from his dominions, and to allow them neither to trade with the Chinese nor Moguls. This produced another embassy to Pekin in 1719, when matters were again adjusted. But this reconciliation was of no long duration; for the Russians having renewed their disorderly behaviour, an order for their expulsion was issued in 1722. The differences were once more made up in 1727, and a caravan allowed to go to Pekin once in three years, provided it consisted of no more than 100 persons; and that during thêir stay their expenses should not, as formerly, be defrayed by the emperor of China. The Russians, at the same time, obtained permission to build a church within the precincts of the caravansary; and four priests were allowed to reside at Pekin for the celebration of divine service; the same indulgence being granted to some Russian scholars, for the purpose of learning the Chinese language, and qualifying themselves for being interpreters between the two nations. This intercourse continued till 1755; since which time no more caravans have been sent to China. It was first interrupted by a misunderstanding betwixt the two courts; and, though that difference was afterwards made up, caravans have not been allowed to pass since. Kiackta is now the appointed mart for the commerce with Russia, regulated in a similar manner to that of Canton. The principal exports from Russia are furs of different kinds; the most valuable of which are those of sea-otters, beavers, wolves, foxes, martins, sables, and ermines; the greater part being brought from Siberia and the newly discovered islands; but, as they cannot supply the demand, there is a necessity for importing foreign furs to Petersburgh, which are afterwards sent to Kiackta. Various kinds of cloth are likewise sent to China, as well as hardware, and live cattle, such as horses, camels, &c. The exports from China are, raw and manufactured silk, cotton, porcelain, rhubarb, musk, &c. The government of Russia likewise reserves to itself the exclusive privilege of purchasing rhubarb. It is generally brought to Kiackta by Buckharian merchants, who have entered into a contract to supply the crown with it in exchange for furs.

Sir George Staunton has recently translated the Chinese narrative of an embassy, which his imperial majesty condescended to send to the Tourgouth Tartars, in the beginning of the last century, and in which, after instructions relative to the khan of the Tourgouths, he is directed to meet the chau-han, khan of Russia (the czar Peter), 'if he should send to desire a conference.' He is ordered, in that event, to 'conform to the customs and ceremonies of that country.' Of China he is directed to say:—'In our empire, fidelity, filial piety, charity, justice, and sincerity, are esteemed above all things. We revere and abide by them. They are the principles upon which we administer the empire, as well as govern ourselves. In the face of danger we firmly adhere to them. We likewise make sacrifices and oblations; we pray for good things, and we deprecate evil things; but if we did not act honestly, if we were not faithful, pious, charitable, just, and sincere, of what avail would be our prayers and sacrifices? In our empire, fidelity, filial piety, charity, justice, and sincerity, are our ruling principles, the objects of our veneration, and the constant guides of our conduct. In our empire, therefore, there is no hostile array of shields and spears, no severe punishments are inflicted; we have now for a long time enjoyed uninterrupted peace and tranquillity.' This, Sir George observes, is a summary of Chinese faith, while a satire upon their practice. To any enquiries respecting the arts and productions of the empire he is to reply:—'It is with us as with other countries, some districts are rich, others are poor; and he is to remark, that a report had reached China, that the kingdom of Russia was not at peace with its neighbours, but engaged in actual hostilities; and if so, he is directed to inform them, that as his imperial majesty has no designs to infringe the peace, 'they may immediately remove and employ their frontier troops, if they see occasion to do so, without the least hesitation or uneasiness.' At the productions of Russia they are commanded to express neither admiration nor contempt, but to say, 'whether our country possesses, or not, such things as these, it is quite out of our province to determine; some things, indeed, there are, which we have seen and others have not seen; but there are other things, again, which others have seen though we have not; on these subjects, therefore, we are by no means sufficiently informed.' They are instructed to refuse the presents that may be offered to them *again* and *again*; but if closely pressed, to accept a small part, alleging that they have nothing valuable to give in acknowledgment. They are cautioned against drinking wine immoderately, against immodest women, and against the corrupt manners and customs of the Russians; but at the same time admonished, that 'if while they are within the Russian territories, they should themselves chance to see any of the women of the country, or to witness any occurrence that may seem absurd in their eyes, they are nevertheless always to preserve their gravity.'

The only *money* anciently used in China was made of small shells, but now both silver and copper coin are met with. The latter consist of small round pieces about nine-tenths of an inch in diameter, with a small square hole in the middle, inscribed with two Chinese words on one side and two Tartar ones on the other. The silver pieces are valued only by their weight. For the convenience of commerce the metal is therefore cast into plates of different sizes; and for want of small coin a Chinese always carries about him his scales, weights, and a pair of scissars to cut the metal. In giving change, silver is not valued by the numerical value of copper, this being entirely regulated by the intrinsic value of the metals. Thus, an ounce of silver will sometimes be worth 1000 copper pieces, and sometimes only 800; and thus the copper money of China may frequently be sold for more than it would pass for in commerce. The emperor would lose much by this recoinage, were he not the sole proprietor of all the copper-mines in China. If the value of unwrought copper exceeds that of the coin, a quantity of the latter is fixed to restore the equilibrium. To keep up a constant circulation of all the coin in the empire, the Chinese government are attentive to preserve an equilibrium between the proportional value of the gold and silver; that is, to regulate the intrinsic value of each in such a manner, that the possessor of silver may not be afraid to exchange it for copper, nor the possessor of copper for silver.

In all the Chinese cities, and even in some of their ordinary towns, there is an office where money may be borrowed upon pledges. Every pledge is marked with a number when left at the office, and must be produced when demanded; but it becomes the property of the office if left there a single day longer than the term agreed on for re-payment. The whole transaction remains an inviolable secret; not even the name of the person who leaves the pledge being enquired after. Lending money upon interest has been in use in China for about 2000 years. It has often been abolished, and as often established. The interest is often thirty per cent., and the year is only lunar. A tenth part of this interest is paid monthly; and concerning neglects of payment, the following laws have been enacted. 'However much the debt may have accumulated by months or years, the principal and interest shall remain always the same. Whoever infringes this law shall receive forty blows of a *pant-see*; or 100 if he uses any artifice to add the principal and interest together.' This law is explained by the following: Whoever shall be convicted before a mandarin of not having paid a month's interest, shall receive ten blows; twenty for two months; and thirty for three; and in this manner as far as sixty; that is to say, to the sixth month. The debtor is then obliged to pay the principal and interest; but those who obtain payment by using violence are condemned to receive twenty-four blows.

Great attention is said to be paid by the Chinese government to the conveniency of travellers. The *roads* are generally broad, all of them paved in the southern provinces, and some in the northern. In many places valleys have been filled up, and rocks and mountains cut through, to make commodious high ways, and to preserve them as nearly as possible on a regular level. They are bordered with very lofty trees, and in some places with walls eight or ten feet high; but openings are left, which give a passage into cross roads that lead to different villages. On all the great roads, covered seats are erected where travellers may take shelter; temples and pagodas are also frequent, into which travellers are admitted without scruple in the day, but often meet with a refusal in the night. In these the mandarins only have a right to rest as long as they think proper. There is, however, no want of inns on the great or even the cross roads in China; but they are ill supplied with provisions; and those who frequent them are obliged to carry beds along with them, or to put up with a plain mat. Towers are erected at intervals, with watch boxes on the top, and flag staffs for signals. Those on the roads conducting to the court are furnished with battlements, and have also large bells of cast iron. According to law these towers should be only five *lees*, or about half a French league, distance from each other. There is no public post-office in China, though several private ones have been established; but only the couriers and officers charged with despatches for the empire have a right to use them. This inconvenience excepted, travellers find conveyance very easy from one part of China to another. Porters are employed in every city, who are associated under the conduct of a chief, who regulates their engagements, fixes the price of their labor, receives their hire, and is responsible for every thing they carry. On the great roads in China there are also several officers of this kind, who have a settled correspondence with others; travellers therefore have only to carry to one of these officers, a list of such things as they wish to have transported: this is immediately written down, and, though there should be occasion for 200 or even 400 carriers, they are instantly furnished.

In our account of the religion and laws of this remarkable people, we have anticipated much of what it might otherwise be necessary to state respecting their morals and manners. Innovation is the great enemy dreaded, apparently, in every thing. Males and females reason, when they do exercise that faculty, converse, construct, and furnish every apartment of their houses, and every article of their dress, as did their grandsires and grandames, and great, great grandsires and grandames, 2000 years since: only the higher the station of a Chinese in society, the more rigorous is his conformity to ancient rule.

In person, the Chinese are about the middle size: but their general appearance is sufficiently remarkable to have obtained for them from Linnæus a place among the homines monstrosi. The face is triangular, having a projection of the upper jaw above the lower, and on the latter very little beard. The nose has a broad root, and the eye is peculiarly long, narrow, and feebly opened; the eye-brow linear and finely arched. The men uniformly plait their strong black hair into a long tail, like the lash of a whip, sometimes extending below the waist to the calf of the leg: the scalp is closely shaved, and the scattered hairs of the beard pulled out till nearly the age of forty, when its growth is promoted.

We have noticed the comfortable clothing in which the great mass of the people appear: but their personal habits are far from cleanly. Mr. Ellis confirms Mr. Barrow's opinion of the Chinese, generally, as a 'frowsy people;' filth and stench he found to pervade all ranks. 'The stench arising from the numbers on board was not sensible only but oppressive.' We transcribe his account of a bath near the temple of Kwan-yin, within one of the gates of Nankin, the old capital of China. 'Near this temple is a public vapor-bath, called, or rather miscalled, the bath of fragrant water, where dirty Chinese may be stewed clean for ten *chens*, or three farthings: the bath is a small room of 100 feet area, divided into four compartments, and paved with coarse marble; the heat is considerable, and, as the number admitted into the bath has no limits but the capacity of the area, the stench is excessive: altogether I thought it the most disgusting cleansing apparatus I had ever seen, and worthy of this nasty nation.'

Rank and dignity are distinguished by certain accessory ornaments; and the person would be severely chastised who should presume to assume them without being properly authorised: but there is little ordinary distinction in China between the dress of men and women. That of the former in general consists of a long vest which reaches to the ground. The left side folds over the other, and is fastened to the right by four or five small gold or silver buttons, placed at a little distance from one another. The sleeves are wide towards the shoulder, growing narrower as they approach the wrist, where they terminate in the form of a horse shoe, covering the hands entirely, and leaving nothing but the ends of the fingers to be seen. Round the middle they wear a large girdle of silk, the ends of which hang down to their knees. From this is suspended a sheath, containing a knife and two small sticks which they use as forks. Below this robe is a pair of drawers, in summer made of linen, and in winter of satin lined with fur, sometimes of cotton, and in some of the northern provinces of skins. These are sometimes covered with another pair of white taffety. Their shirts are always very short and wide. Under these they wear a silk net to prevent it from adhering to the skin. In warm weather they have their necks always bare; in cold, they wear a collar made of silk, sable, or fox's skin, joined to their robe, which in winter is trimmed with sheep's skin, or quilted with silk and cotton. That of people of quality is lined with beautiful sable skins brought from Tartary, or with the finest fox's skin, trimmed with sable; in spring it is lined with ermine. Above their robe they wear also a kind of surtout, with wide sleeves, but very short, and lined in the same manner.

The emperor and princes of the blood only have a right to wear yellow; certain mandarins have liberty to wear satin of a red ground, but only upon days of ceremony; in general they are clothed in black, blue, or violet. The inferior ranks are allowed to wear no other colors but blue or black; and their dress is always composed of plain cotton cloth. Formerly the Chinese were at great pains to preserve their hair; but the Tartars compelled them to cut off the greater part of it, and to alter the form of their clothes after their fashion. This revolution in dress was not effected without bloodshed, though the conqueror at the same time adopted in other respects the laws, manners, and customs of the conquered people. In summer they wear a cap shaped like an inverted cone, lined with satin, and covered with ratan or cane neatly wrought. The top terminates in a point, to which they affix a tuft of red hair, which spreads over it and covers it to the brims. The mandarins and literati wear a cap of the same form; only it is lined with red satin, and covered on the outside with white. A large tuft of the finest red silk is fixed over it, which hangs down or waves with the wind. People of distinction generally use the common cap on horseback or during bad weather, to keep off rain, and shelter them from the rays of the sun. In winter they have another cap bordered with sable, ermine, or fox's skin, and ornamented with a tuft of silk like the former. These fur trimmings have sometimes forty or fifty ounces of silver upon them. Men of rank never go abroad without boots made of satin or some other silk, and sometimes of cotton, but always dyed. They have neither heel nor top, but are made to fit the foot exactly. When on horseback, however, they have others made of the skin of a cow or a horse, and very pliable. The inferor ranks wear black slippers made of cotton cloth. The fan is also an appendage of the Chinese dress, reckoned equally necessary with the boots.

The dress of the women consists of a long robe close at top, and long enough to cover even their toes, with sleeves so long that they would hang down upon the ground did they not take care to tuck them up; but their hands are seldom seen. The color of their dresses is entirely arbitrary, but black and violet are generally chosen by those advanced in life. Young ladies use paint. Their head-dress consists in arranging their hair in several curls, interspersed with tufts of gold or silver flowers. According to Du Halde, some of them ornament their heads with the image of a fabulous bird, concerning which many stories are told. This is made of copper or silver gilt, its wings extended and pretty close to the head-dress, embracing the upper part of their temples, while the long spreading tail forms a kind of plume on the top of the head. Its body is directly over the head, and the neck and bill hang down, the former being joined to the body by a concealed hinge, that it may play freely, and move about on the least motion of the head. The whole bird adheres to the head by the claws, which are fixed in the hair. Ladies of quality sometimes wear several of these birds made up into a single ornament, the workmanship of which is very expensive. Young persons wear also a crown of pasteboard, the fore part of which rises in a point above the forehead, and is covered with jewels. The rest of the head is decorated with natural or artificial flowers, among which small diamond pins are interspersed. The head-dress of the ordinary class of women, especially when advanced in years, consists only of a piece of very fine silk wrapped round their heads. The Chinese use white as the color proper for mourning. A son can use no other for three years after the death of his father or mother; and ever afterwards his clothes must be of one color. The law has forbidden the use of silks and furs to children.

The character of their *diet* is expressed by Mr. Ellis in two words, as 'greasy insipidity.' Insipid however as it may be, observes the Quarterly Review, we will venture to say, that no alderman at a civic feast could possibly play off his knife and fork to better purpose, than a mandarin, at his solitary meal, his little chop-sticks: but we doubt the fact; we should rather say, that their food in general is prepared with stimulants of too pungent a nature, and that their various soups, gravies, jellies, soys, and other condiments, are too highly seasoned. The poor, it is true, feed miserably enough, and are too happy to obtain rats, cats, dogs, and other animals, which we are in the habit of considering as nauseous; and sometimes, we doubt not, passengers in the barges are infested, as Mr. Ellis was, by a most diabolical stench, proceeding from a choice preparation of stinking fish; but it might also happen that his olfactory nerves would sometimes be offended by an agreeable companion in a stage-coach, even in England.

On the other hand, this gentleman bears testimony to their very *orderly* manners. 'In passing through the streets it was impossible not to be struck with the silence and regularity of the crowds of spectators; although every countenance expressed curiosity, scarcely an observation was made; there was no pointing with fingers; and though the streets may be said to have been lined with soldiers at inconsiderable intervals, the exercise of their authority did not seem necessary to maintain tranquillity. Again, of the progress of the embassy through Tien-tieng, he says, we were two hours and a half passing from the beginning of the line of houses on the right bank of the river to our anchorage. A salute was fired from a small fort; and nearly opposite troops were drawn up. Among them were matchlock men, wearing black caps. We observed some companies dressed in long yellow and black striped garments, covering them literally from head to foot; they are intended to represent tigers, but certainly are more likely to excite ridicule than terror; defence, from the spread of their shields, would seem their great object. A short distance from our anchorage, we passed on our left the branch of the river leading to the canal, and thence to Canton. The excess of population was here most striking. I counted 200 spectators upon one junk, and these vessels were innumerable. The pyramids of salt were so covered with them, that they actually became pyramids of men. Some crowds of boys remained standing above their knees in the water for nearly an hour to satisfy their curiosity. A more orderly assemblage could not, however, I believe, be presented in any other country; and the soldiers had but seldom occasion to use even threatening gestures to maintain order. I had not before conceived that human heads could be so closely packed; they might have been by screws squeezed into each other, but there was often no possible vacancy to be observed. All these Chinese spectators were exposed, bareheaded, to the rays of the mid-day sun, when the thermometer in the shade stood at eighty-eight. Females were not numerous in the crowd, and these generally old and always of the lower orders.'

And the Chinese are, upon the whole, a very temperate people. Mr. Ellis indeed says, that drunkenness, unaccompanied with exposure, is regarded as a venial offence; and that it is not unusual to compliment a man upon the hardness of his head or the capacity of his stomach, by saying he has a large wine-measure; but he afterwards allows that in general he found them to prefer raspberry vinegar and water, to wines and cordials. Tea is the universal beverage. A small quantity of bohea, sufficient to tinge the water and render it palatable (for they drink no green), is taken in the morning, and thrown into a vessel adapted to the number in the family. This stands till milk warm; in which state it is kept the whole day, and a cup is taken now and then without sugar or milk; if a stranger call by accident, or a visit, or by appointment, the first thing presented is a small pipe filled with tobacco of their own growth, and a cup of tea with sweetmeats, &c.

Few opportunities are given to a stranger of observing much of the fair sex. Mr. Ellis found them always sent into the back ground, in fact there was a proclamation stuck up along their route, prohibiting women from appearing in the streets and exposing themselves to the gaze of the tribute-bearers. The populace on each bank of the river (it said) are not allowed to laugh and talk with the foreigners, nor are women and girls allowed to show their faces. Female curiosity, however, says Mr. E. was not to be overcome even by the apprehensions of incurring the displeasure of the son of heaven. In the streets of Gan-king-foo, the women showed themselves at the doors, and from their gestures and appearance I should imagine that they were prouder of their beauty than their modesty.

The Chinese women carry themselves even to old age remarkably upright; and our traveller conjectured that, as cramping the feet is so general that no exception occurred, their uprightness may be owing to the smallness of the base on which they stand. When lord Macartney pressed his friend, Chouta-jin, on this subject, all he could get from him was, that 'it was an ancient custom:' he admitted, however, that it might possibly have taken its rise in jealousy; 'which,' says his lordship, 'has always been ingenious in its contrivances for securing the ladies to their owners, and might plausibly suggest, that a good way of keeping them at home was to make it very painful to them to gad abroad.' It is a fact that every possible method is used to press the feet of young females into the almost incredible smallness of the Chinese shoe, which is so often brought into this country.

We are disposed to enter but briefly on the intricate subject of Chinese *history*. The common school-book of the young, Siao-ul-lun (Instruction for little Children), is said to contain the following remarkable passage: 'In remote antiquity the waters rushed in—the waters flowed abundantly—the waters became at rest—the waters subsided (each of these four states of the water is expressed by a single symbol), and having cut off the higher or more ancient periods of time, material bodies were produced. The venerable family of heaven, great and small, were thirteen persons, each lived 18,000 years; the venerable family of earth, great and small, were eleven persons, each lived 18,000 years; the venerable family of man were nine persons, each lived 45,600 years; the family of Yen-quo (fruit-bearing) taught men to till the ground, to plant trees and fruits, and to build houses; the family of Lui-quin (man of fire), by the friction of wood, produced fire, instructed men to melt and forge the different metals, and to boil their victuals.'

With these 18,000 and 45,600 years we really cannot encounter. Some ingenious European historians have contracted them into days, and found them thus to agree with the Mosaic account. The fact is, a tradition of the flood is universal, and the confirmation of that remarkable circumstance is all the history of China is worth, until about A. A. C. 213. The inaccuracy of the Chinese annals is complained of, even by Confucius, who affirms, that, before his time, many of the oldest materials for writing such annals had been destroyed. Puonku was, according to these annals, the first monarch of earth, and succeeded by Tiene-hoang, which signifies the emperor of heaven. They call him also the intelligent heaven, the supreme king of the middle heaven, &c. According to some of their historians, he was the inventor of letters, and of the Cyclic characters. Tiene-hoang was succeeded by Ti-hoang (the emperor of the earth), who divided the day and night, appointing thirty days to make one moon, and fixed the winter solstice to the eleventh moon. Ti-hoang was succeeded by Gine-hoang (sovereign of men), who, with his nine brothers, shared the government among them. They built cities, and surrounded them with walls; made a distinction between the sovereign and subjects; instituted marriage, &c. The reigns of these four emperors make up one of what the Chinese called ki, ages, or periods; of which there were nine before Fo-hi, whom their better informed literati acknowledge as the founder of their empire.

In the ninth period, we find the invention, or at least the origin of letters, attributed to Tsang-hie, who received them from a divine tortoise, that carried them on his shell, and delivered them into the hands of Tsang-hie. During this period also, music, money, carriages, merchandise, and commerce, &c. were invented. There are various calculations of the length of these periods. Some make the time from Puan-ku to Confucius, who flourished about A. A. C. 479, to contain 279,000 years; others, 2,276,000; some, 2,759,860 years; others, 3,276,000; and some no less than 96,961,740 years. These extravagant accounts are by some thought to contain obscure and imperfect hints concerning the cosmogony and creation of the world, &c. and the the ten ki, or ages, nine of which preceded Fo-hi, to mean the ten generations preceding Noah. This may possibly be the case; for, about A. A. C. 300, we know several Jews travelled into China, who might make known there the Mosaic writings.

The above is the substance of that part of the Chinese history which is fabulous. The Chinese historians speak of knotted cords, twisted from the inner bark of trees, being made use of to register events at this period of their history; a circumstance that only deserves notice, as Barrow remarks, from the remarkable coincidence of a nation (the Mexicans), having been discovered many thousand years afterwards, on a different continent, and the antipodes almost of China, who were actually in the practice of using the same means for the same purpose.

After Fo-hi followed a series of emperors, of whom nothing remarkable is recorded, except that in the reign of Yau, the seventh after Fo-hi, the sun did not set for ten days. This event the compilers of the Universal History take to be the same with that mentioned in the book of Joshua, when the sun and moon stood still for about a day. Fo-hi they suppose to be the same with Noah: that after the deluge he remained some time with his descendants; but that, on their combination to build the tower of Babel, he separated himself with as many as he could persuade to go along with him; and that, travelling eastward, he at last entered the fertile country of China, and laid the foundation of that vast empire. As the Chinese, contrary to the practice of almost all nations, have never sought to conquer other countries, their history for many ages furnishes nothing remarkable. The whole of their emperors (excluding those of the fabulous times) are comprehended in twenty-two dynasties, enumerated in the following table:

CHINESE DYNASTIES.

	Emperors.	A. A. C.
1. Hya, containing .	17	2207
2. Shang, or Ing . .	28	1766
3. Chew . . .	35	1122
4. Tsin . . .	4	248
5. Han . . .	25	206
		A. D.
6. Hew-han . . .	2	220
7. Tsin . . .	15	465
8. Song . . .	8	220
9. Tsi	5	479
10. Lyang . . .	4	502
11. Chin . . .	4	557
12. Swi	3	A. A. C.
13. Twang . . .	20	618
14. Hew-lyang . .	2	907

	Emperors.	A. A. C.
15. Hew-tang	4	923
16. Hew-tsin	2	936
17. Hew-han	2	947
18. Hew-chew	3	951
19. Song	18	960
20. Ywen	9	1280
21. Ming	16	1368
22. Tsing		1645

The compilers of the Universal History make Yau contemporary with Joshua, and the dynasty of Hya to commence A. A. C. 1357; but, to accommodate the history to their hypothesis, great alterations must be made in the duration of the dynasties. The most interesting particulars of the Chinese history relate to the incursions of the Tartars, who at last conquered the whole empire, and who still continue to hold the sovereignty; though by transferring the seat of empire to Pekin, and adopting the Chinese language, manners, &c. Tartary would seem rather to have been conquered by China, than China by Tartary. These incursions are said to have begun very early; even in the time of Shun, successor to Yau. At first the Tartars were repulsed, and obliged to retire into their own territories. They continued, however, to threaten the empire with invasions, and the northern provinces were often ravaged by them. About A. A. C. 213, Shi-whangti, having subdued all the kings of the different provinces, became sole emperor of China. He now divided the empire into thirty-six provinces; and, finding the north part much incommoded by the barbarians, he sent a formidable army against them, which drove them far beyond the boundaries of China-Proper. To prevent their return he built the famous wall which separates China from Tartary. After this, being elated with his own exploits, he formed a design of making posterity believe that he had been the first Chinese emperor that ever sat on the throne. For this purpose he is said to have ordered all the historical writings to be burnt, and caused many of the learned men to be buried alive lest they should have committed to writing, from their memories, any part of the former history of the empire.

In the tenth century of the Christian era those of Kitan or Lyau got a footing in China. Having subdued the country between Korea and Kashgar, they became much more troublesome to the Chinese than all the other Tartars. Their empire commenced about A. D. 916, in the fourth year of Mo-ti-kyan-ti, second emperor of the fourteenth dynasty.

In A. D. 999, they laid siege to a city in Pecheli; but Ching-tsong, successor to Tay-tsong, came upon them with his army so suddenly, that they betook themselves to flight. But instead of pursuing this victory, he bought a peace, by consenting to pay annually 100,000 tael (about £34,000), and 200,000 pieces of silk. The youth and pacific disposition of Jin-tsong, successor to Ching-tsong, revived the courage of the Kitan; and, in 1055, war would have been renewed, had not the emperor concluded another shameful treaty with them. Two years after, the Tartars demanded restitution of ten cities in Pecheli, which had been taken by Ko-ghey; upon which Jin-tsong engaged to pay them an annual tribute of 200,000 taels of silver, and 300,000 pieces of silk in lieu of these cities. From this time, the Kitan remained in peaceable possession of their Chinese dominions till A. D. 1117. Whey-tsong, at that time emperor, being able neither to bear their ravages, nor by himself to put a stop to them, resolved upon a remedy which at last proved worse than the disease. This was to call in the Nu-che, Nyu-che, or Eastern Tartars, to destroy the kingdom of the Kitan. Joining his forces to those of the Nu-che, the Kitan were every where defeated; and at last reduced to such extremity, that those who remained were forced to leave their country, and fly to the mountains of the west.

The Tartar general, elated with his conquest, gave the name of Kin to his new dominion, assumed the title of emperor, and broke the treaties concluded with the Chinese, until invading the provinces of Pecheli and Shen-si, he made himself master of the greater part of them. Whey-tsong, finding himself in danger of losing his dominions, made several advantageous proposals to the Tartars; but the Kin monarch pursued his conquest, and Whey-tsong was finally seized by the Tartars, and kept a prisoner under a strong guard until his death in 1126. He had two or three feeble successors.

In 1163 the Tartars entered the southern province with a formidable army, and took the city of Yang-chew. From this time nothing remarkable occurs in the Chinese history till 1210, when Jenghiz khan, chief of the Moguls, quarrelled with Yong-tsi, emperor of the Kin; and at the same time the king of Hya, *disgusted* at being refused assistance against Jenghiz khan, threatened him with an invasion on the west side. Yong-tsi prepared for his defence; but in 1211, receiving news that Jenghiz khan was advancing southward with his whole army, he made proposals of peace, which were rejected. In 1212 the Mogul general forced the great wall; or, according to some writers, had one of the gates treacherously opened, and made incursions as far as Pekin, the capital of the Kin empire. At the same time the province of Lyau-tong was almost totally reduced by several Kitan lords who had joined Jenghiz khan; several strong places were taken, and an army of 300,000 *Kin* were defeated by the Moguls. In autumn they laid siege to the city of Taytong-su; where, although the governor Hujaku fled, yet Jenghiz khan met with considerable resistance. Having lost a vast number of men, and being himself wounded by an arrow, he was obliged to raise the siege and retire into Tartary; after which the Kin took several cities. The next year, however, Jenghiz khan re-entered China; retook the cities which the *Kin had* reduced the year before; and overthrew their armies in two bloody battles, in one of which the ground was strewed with dead bodies for upwards of four leagues. The same year Yong-tsi was slain by his general Hujaku; and Sun, a prince of the blood, advanced in his room. After this the Moguls, attacking the empire with four armies at once, laid waste Shansi, Honan, Pecheli, and Shantong. In 1214 Jenghiz khan sat down before Pekin; but instead of assaulting the city, offered terms of peace, which were accepted, and the Moguls retired into Tartary.

The emperor, leaving his son at Pekin, removed the court to Pyen-lyang near Kay-song-fu, the capital of Honan. At this Jenghiz khan, being offended, immediately sent troops to besiege Pekin, which held out till May, 1215, and then surrendered. At the same time the Moguls finished the conquest of Lyau-tong; and the Song refused to pay the usual tribute to the Kin. In 1216 Jenghiz khan returned to pursue his conquests in the west of Asia, where he staid seven years, during which time his general Muhuli made great progress in China against the Kin emperor. He was much assisted by the motions of Ning-tsong, emperor of Song; who, incensed by the frequent perfidies of the Kin, had declared war against them, and would hearken to no terms of peace. Notwithstanding this however, in 1220 the Kin, exerting themselves, raised two great armies in Shensi and Shangton: the former baffled the attempts of the Song and the king of Hya, who had united against them; but the latter, though no fewer than 200,000, were entirely defeated by Muhuli. In 1221 that officer passed the Whang-ho, and died after conquering several cities. In 1224 the Kin emperor died; and was succeeded by his son Shew, who made peace with the king of Hya: but next year that kingdom was entirely detroyed by Jenghiz khan. In 1226 Otkay, son to Jenghiz khan, marched into Honan, and besieged Kay-song-fu, capital of the Kin empire; but was obliged to withdraw into Shensi, where he took several cities, and cut in pieces an army of 30,000 men. In 1227 Jenghiz khan died, after having desired his sons to demand a passage for their army through the dominions of the Song, without which, he said, they could not easily vanquish the Kin. The war was caried on with various success, until January, 1234, the Kin having lost all his best officers, resigned the crown to Cheng-lin, a prince of the blood. The next morning, while the ceremony of investing the new emperor was performing, the enemy mounted the south walls of Juning-fu, and the gate being abandoned, the whole army broke in. They were opposed, however, by Hu-sye-hu, who, with 1000 soldiers continued to fight with amazing intrepidity. In the mean time Shew-fu, seeing every thing irreparably lost, lodged the seal of the empire in a house, and then causing sheaves of straw to be set round it, ordered it to be set on fire as soon as he was dead. After giving this order he hanged himself, and his commands were executed by his domestics. Hu-sye-hu, who still continued fighting with great bravery, no sooner heard of the tragical death of the emperor, than he drowned himself in the river Ju; as did also 500 of his most resolute soldiers. The same day the new emperor, Cheng-lin, was slain in a tumult; and thus an end was put to the dominion of the Kin Tartars in China. The empire of China was now to be shared between the Song, or Southern Chinese, and the Moguls.

It had been agreed upon, that the province of Honan should be delivered up to the Song as soon as the war was finished. But they, without waiting for the expiration of the term, or giving Oktay notice of their proceedings, introduced their troops into Kay-song-fu, Lo-yang, and other considerable cities. On this the Mogul general resolved to attack them; and, repassing the Whang-ho, cut off part of the garrison of Lo-yang, while they were out in search of provisions. The garrison of Kay-song-fu likewise abandoned that place; and the Song emperor degraded the officers who had been guilty of those irregularities, sending ambassadors to Oktay, at the same time, to desire a continuance of the peace. The event showed that Oktay was not well pleased; for, in 1235, he ordered his second son prince Kotovan, and his general Chahay, to attack the Song in Se-chwen, while others marched towards the borders of Kyang-nan. In 1236 the Moguls made great progress in the province of Huquang, where they took several cities, and put vast numbers to the sword. This year they introduced paper or silk money, which had formerly been used by Chang-tsong, sixth emperor of the Kin. Prince Kotovan forced the passages into the district of Hang-chon-fu in Shensi, which he entered with an army of 500,000 men. Here a terrible battle was fought between the vast army of the Moguls and the Chinese troops, who had been driven from the passages they defended. The latter consisted only of 10,000 horse and foot, who were almost entirely cut off; and the Moguls lost such a number of men, that blood is said to have run for two leagues together. After this victory the Moguls entered the province of Se-chwen; but still met with vigorous opposition. Though the Chinese were always beaten, being greatly inferior in number to their enemies, yet they generally retook the cities the Moguls had reduced, as the latter were commonly obliged to withdraw for want of provisions and forage. In 1259, they undertook the siege of Ho-chew, a strong city to the west of Pekin, before which fell the Mogul emperor, Meng-ko, himself. A treaty was finally concluded, by which the Song became tributary to the Moguls, but 170 of the Mogul army having staid on the other side of the river Kyang were put to death by Kya-tse-tau, the Chinese minister, who made his master believe that the enemy had been defeated, and compelled to retreat. This proved the ruin of the empire; for, in 1260, the Mogul emperor sent Hauking to the Chinese court to execute the treaty according to terms agreed on with Kya-tse-tau. The minister, dreading the arrival of this envoy, imprisoned him near Nankin; and took care that neither Hupilay, nor Li-tsong the Chinese emperor, should hear any thing of him. Such unparalleled conduct could not fail to produce a new war. Hostilities were accordingly renewed in 1268. The Mogul army amounted to 300,000 men; but little progess was at first made. In the beginning of 1273 they planted their engines against Fan-ching, and presently made a breach in the walls. After a bloody conflict the Moguls made themselves masters of the suburbs, walls, and gates of the city; but a Chinese officer, with only 100 soldiers, resolved to fight from street to street. This he did for a long time with the greatest obstinacy, killing vast numbers of the Moguls; and both parties are said to have been so much overcome with thirst, that they drank human blood to quench it. The Chinese set fire to the houses, and multitudes put an end to their own lives. In 1274, Pe-yen, an officer of great valor and humanity, was promoted to the command of the Mogul army. Having taken Nanking, and some other cities, he marched towards Hang-chew-fu, the capital of the Song empire. Peace was now again proposed but rejected; and at last the empress was constrained to put herself, with her son, then an infant, into the hands of Pe-yen, who immediately sent them to Hupilay. This however did not yet put an end to the war Many of the chief officers swore to do their utmost to rescue the empress and, raised an army of 40,000 men. This army attacked the city where the young emperor Kongtsong was lodged, but without success; after which, they raised one of his brothers to the throne, who took the name of Twon-tsong. He was only nine years of age, and enjoyed it but a very short time. In 1277 he was in great danger of perishing, a ship on board which he was being cast away. Soon after he made offers of submission to Hupilay. These however, were not accepted; and in 1278 he retired into a desert island on the coast of Quang-tong, where he died. On this the mandarins raised to the throne his brother, Te-ping, then only eight years of age. His army consisted of no fewer than 200,000 men; but being utterly void of discipline, and experience, they were defeated with 20,000 Mogul troops, and thus ended the Chinese race of emperors; and the Mogul dynasty, known by the name of Ywen, commenced.

Though no race of men that ever existed were more remarkable for cruelty and barbarity than the Moguls, yet the emperors of the Ywen dynasty were not in any respect worse than their predecessors. On the contrary Hupilay, by the Chinese called Shitsu, found the way of reconciling the people to his government, and even of endearing himself to them so much, that the reign of his family is to this day styled by the Chinese the wise government. This he accomplished by keeping close to their ancient laws and customs, by his mild and just government, and by his regard for their learned men. He was indeed ashamed of the ignorance of his Mogul subjects, when compared with the Chinese. At his first accession he fixed his residence at Tay-ywen-su, the capital of Shen-si; but afterwards removed it to Pekin. Here, being informed that the barks which brought to court the tribute of the southern provinces, or carried on trade, were obliged to come by sea, and often suffered shipwreck, he caused that celebrated canal to be made, which is at present one of the wonders of the Chinese empire.

In the third year of his reign Shi-tsu formed a design of reducing the islands of Japan, and the kingdoms of Tonquin and Cochin China. But these enterprises ended unfortunately. Shi-tsu reigned fifteen years. The Ywen family preserved itself on the throne till 1367, when Shun-ti, the last of the dynasty, was driven out by a Chinese named Chu. After various successful conflicts with the forces, naval and military, of Shun-ti, he assumed the title of emperor at Nanking on the 1st of January, 1368. After this his troops entered Honan, which they presently reduced. In the third month, Chu, who had now taken the name of Hong-vu, or Tay-tsu, reduced the fortress of Tongquan; after which his troops entered Pecheli from Honan on the one side, and Shang-tong on the other; took the city of Tong-chew; and then prepared to attack the capital, from which they were but twelve miles distant. On their approach, the emperor fled with all his family beyond the great wall, and thus put an end to the dynasty of Ywen. In 1370 he died, and was succeeded by his son, whom the successor of Hong-vu drove beyond the Kobi, or Great Desert, which separates China from Tartary. They continued their incursions however for many years; nor did they cease their attempts till 1583, when vast numbers of them were cut off by the Chinese troops.

The twenty-first dynasty of Chinese emperors, founded in 1368 by Chu, continued till 1644, when they were again expelled by the Tartars, who established the present reigning house. The last Chinese emperor was Whey-tsong, who ascended the throne in 1628. He was a great lover of the sciences, and a favorer of the Christians; though much addicted to the superstitions of the bonzes or priests. He found himself engaged in a war with the Tartars, while a number of rebels rose in the different provinces. Through the treachery of one of his generals, the former advanced to Pekin, but were repulsed. In 1636 the rebels composed four great armies, commanded by as many generals; which, however, were soon reduced to two, commanded by Li and Chang. These agreed to divide the empire between them; Chang taking the western, and Li, the eastern provinces. The latter seized on part of Shen-si and Honan, whose capital, named Kay-song-fu, he laid siege to, but was repulsed with loss. He renewed it six months after, but without success: the besieged choosing rather to feed on human flesh than surrender. After this Li marched into the provinces of Shen-si and Honan, and thought himself strong enough to assume the title of emperor. He next advanced towards the capital, which, though well garrisoned, was divided into factions. The gates were opened to him the third day after his arrival, whilst the emperor was shut up in his palace, busied only with his superstitions. It was not long, however, before he found himself betrayed; upon which he retired with his empress, and a princess, her daughter, into a private part of the garden, where she hung herself on a tree in a silken string: her husband stayed only to write on the border of his vest, 'I have been basely deserted by my subjects; do what you will with me, but spare my people.' He then cut off the young princess's head with his scymitar, and hanged himself on another tree, in the seventeenth year of his reign, and thirty-sixth of his age. The empire now submitted peaceably to the usurper, except prince U-san-ghey, who commanded the imperial forces in the province of Lyau-tong. This brave general invited the Tartars to his assistance, and Tsonge-te, their king, immediately joined him with an army of 80,000 men. Upon this the usurper marched directly to Pekin; but, not thinking himself safe there, plundered and burnt the palace, and fled with an immense treasure. The young Tartar monarch was immediately declared emperor of China; his father, Tsong-te, having died almost as soon as he crossed the frontier.

The new emperor, named Shun-chi, or Xun-chi, began his reign by conferring upon U-san-ghey the title of king; and assigned nim the city of Si-gnan-fu, the capital of Shen-si, for his residence. This, however, did not hinder U-san-ghey from repenting of his error in calling in the Tartars, or, as he himself phrased it, 'in sending for lions to drive away dogs.' In 1674 he formed a strong alliance against them, and had probably prevailed if his allies had been faithful; but they treacherously deserted him one after another: his projects utterly failed, and he died soon after. In 1681 Hong-wha, son to U-san-ghey, who continued his efforts against the Tartars, was reduced to such straits, that he put an end to his own life. During this space resistance had been made to the Tartars in many of the provinces. Two princes of Chinese extraction were at different times proclaimed emperors; but were overcome and put to death. In 1682 the whole fifteen provinces were so effectually subdued, that the emperor Kang-hi, successor to Shun-chi, determined to visit his native dominions of Tartary. He was accompanied by an army of 70,000 men, and continued for some months taking the diversion of hunting. He continued to make this visit for several years; and in his journeys took father Verbeist, the Jesuit, along with him; from whom we have a better description of these countries than could otherwise have been obtained. This prince was a great encourager of learning and of the Christian religion; in favor of which he published a decree, dated in 1692. In 1716, however, he revived some obsolete laws against the Christians; nor could the Jesuits with all their art preserve the footing they had obtained. He died in 1722, and was succeeded by his son Yon-ching, who not only gave the missionaries no encouragement, but persecuted all Christians indiscriminately. At the beginning of his reign he banished the Jesuits to the city of Canton, and from thence finally to the island of Macao. He died in 1736.

The next memorable occurrence in the history of China is the voluntary migration of a vast number of Russian Tartars into China. In 1771 the Tartars which composed the nation of the Tourgouths, left their settlements under the Russian government on the banks of the Wolga, and the Yaick, near the Caspian sea, and, in a body of 50,000 families, passed through the country of the Hasacks. After a march of eight months they arrived in the plains on the frontier of Carapan, near the river Ily, and offered themselves as subjects to Kien-lung, emperor of China, then in the thirty-sixth year of his reign. He received them graciously, furnished them with provisions, clothes, and money, and allotted to each family a portion of land for agriculture and pasturage. In 1772 there was a second emigration of about 30 000 other Tartar families, who also quitted their settlements under the Russian government, and submitted to the Chinese. The emperor caused the history of these emigrations to be engraven on stone in four different languages.

In 1792 the British government despatched a splendid embassy to this monarch, under lord Macartney. Kien-lung was then in the eighty-fifth year of his age, and fifty-seventh of his reign. The embassy consisted of forty-four persons, besides the earl, and his secretary, Sir George Staunton; having a guard of honor of fifty soldiers. The earl and his suite set sail from Portsmouth, Sept. 25th, 1792, in the Lion, of sixty-four guns, accompanied by the Hindostan East Indiaman, and the Jackall brig. On the 17th of August they arrived at Pekin; where, after being detained fourteen days, lord Macartney learned that the emperor was at Jehol in Tartary. He accordingly set off for that place on the 2nd of September, leaving great part of his train at Pekin; and arrived at Jehol, on the 8th, where his reception was very cool. On the 12th a part of the presents were sent to the emperor, and on the 14th, the earl had his first interview, and delivered his credentials, which were received with great formality: on the 15th and 17th he had his second and third audiences, and on the 18th his audience of leave, when the emperor refused to enter into any written treaty with his Britannic Majesty; upon a fundamental principle in Chinese politics that innovation, of whatever kind, is pregnant with ruin. He, expressed, however, his high respect for the British nation; his inclination to grant them greater indulgencies than any other European power, and to diminish the duties payable by them at Canton, provided it could be done without prejudice to his own subjects. He then delivered to the earl, a box, containing the miniature pictures of all his imperial predecessors, with verses by each, descriptive of himself; which he said, was 'the most valuable present his empire could furnish, as it had been transmitted through a long line of ancestors, and was the last token of affection which he had reserved for his only son.' On the 21st of Sept. lord Macartney returned to Pekin: the emperor followed on the 28th, and the remaining presents were soon after sent to his palace. At last, on the 7th of Oct. the gentlemen of the embassy were equally surprised and mortified by a sudden and most unexpected order to depart in two days. Our ambassador and his suit accordingly left Pekin for Tong-tchew on the 9th of Oct. and arrived at Spithead, Sep. 3rd, 1794. Thus the hopes of any great advantages resulting from this embassy were blasted, and particularly the desire of our government, that an ambassador should be permitted to reside at the imperial court.

A second effort of the same kind has been made with even less success. In 1816 lord Amherst was united with Sir George Staunton, and H. Ellis, esq. in a commission of embassy to the court of Pekin. They arrived in the Gulf of Petchelee on the 25th of July. According to the precedent of lord Macartney's embassy, two mandarins visited the ambassador on board, and a legate received him on shore. After some questions of routine, as to the objects of the embassy, the number of persons it consisted of, &c. they adverted to the ko-tou, or ceremony of prostration, and observed that previous practice would be required to secure the proper performance of it in the emperor's presence. Lord Amherst only observed, on this occasion, that whatever was right would be done.

But so early a discussion of this delicate topic was ominous of disaster. Lord Amherst now formally took the opinion of Sir George Staunton and his coadjutors: when Sir George at once declared that the performance of the ceremony thus demanded was not only incompatible with personal and national respectability, but that it would be attended with the most injurious effects on the Company's interests at Canton: which were maintained principally by a respect for the firmness of British principles, known to be pledged on this subject.

On the 12th of August they reached Tien-sing, and an entertainment being given to the embassy on the following day, in the name of the emperor, he, argued the mandarins, was supposed to be present, and the ko-tou was peremptorily required. Lord Amherst declared his intention of following, in every respect, the precedent established by lord Macartney. They said that lord Macartney had performed every ceremony, and especially the ko-tou, not only in the presence of the emperor but at all other times; and Soo declared that himself remembered his having performed it at Canton: they had even the assurance to appeal to Sir George Staunton for the truth of this assertion. Nor was this all: they produced a paper, purporting to be an extract from the official records of the court of ceremonies, describing the whole ceremony as performed by lord Macartney.

Lord Amherst, however, was firm, and the utmost ceremony to which he would submit was to bow nine times to the vacant seat of the emperor, while the mandarins performed the ko-tou. From Tong-choo, notwithstanding this, a report was forwarded to the emperor that the English tribute-bearer was daily practising the ceremony with the highest possible respect and veneration. We have noticed the haughty demand of his imperial majesty on the arrival of lord Amherst at Pekin. He had scarcely taken his seat, after travelling all night, when Chang, one of the first ministers of the imperial court, delivered him a message to appear with his suite, and the other commissioners, before the emperor instantly. Much surprise, says Mr. Ellis, was naturally expressed; the previous arrangement for the eighth of the Chinese month, a period certainly much too early for comfort, was adverted to; and the utter impossibility of his excellency appearing in his present state of fatigue, inanition, and deficiency of every necessary equipment, was strongly urged. Chang was very unwilling to be the bearer of this answer, but was finally obliged to consent. During this time the room had filled with spectators of all ages and ranks, who rudely pressed upon us to gratify their brutal curiosity; for such it may be called, as they seemed to regard us rather as wild beasts than mere strangers of the same species with themselves. Some other messages were interchanged between the koong-yay and lord Amherst, who, in addition to the reasons already given, stated the indecorum and irregularity of his appearing without his credentials. In reply to this it was said, that in the proposed audience the emperor merely wished to see the ambassador, and had no intention of entering upon business. Lord Amherst having persisted in expressing the inadmissibility of the proposition, and in transmitting through the koong-yay an humble request, to his imperial majesty, that he would be graciously pleased to wait till to-morrow, Chang and another mandarin finally proposed that his excellency should go over to the koong-yay's apartments, whence a reference might be made to the emperor. Lord Amherst, having alleged bodily illness as one of the reasons for declining the audience, readily saw that if he went to the koong-yay this plea, which to the Chinese (though now scarcely admitted) was in general the most forcible, would cease to avail him; he therefore positively declined compliance: this produced a visit from the koong-yay, who, too much interested and agitated to heed ceremony, stood by lord Amherst and used every argument to induce him to obey the emperor's commands. Among other topics he used that of being received with our own ceremony, using the Chinese words *ne-muntihlee*, your own ceremony. All proving ineffectual, with some roughness, but under pretext of friendly violence, he *laid hands upon lord Amherst*, to take him from the room; another mandarin followed his example. His lordship, with great firmness and dignity of manner, shook them off, declaring that nothing but the extremest violence should induce him to quit that room for any other place but the residence assigned to him; adding that he was so overcome by fatigue and bodily illness as absolutely to require repose. Lord Amherst further pointed out the gross insult he had already received in having been exposed to the intrusion and indecent curiosity of crowds, who appeared to view him rather as a wild beast than the representative of a powerful sovereign: at all events he entreated the koong-yay to submit his request to his Imperial Majesty, who, he felt confident, would, in consideration of his illness and fatigue, dispense with his immediate appearance. The koong-yay then pressed lord Amherst to come to his apartments, alleging that they were cooler, more convenient, and more private: this lord Amherst declined, saying that he was totally unfit for any place but his own residence.

They now drove to the rest of the party at Hai-tien, and hither the emperor's orders followed for their immediate departure. It was in vain to plead fatigue; no consideration could weigh against the positive imperial command; and, at four o'clock in the afternoon, lord Amherst had the pleasure of a second night's journey round the walls of Pekin, within which he was not suffered to enter. The embassy was afterwards conducted nearly to Canton, and some gleams of repentance seem to have entered the imperial mind; but the embassy was suffered to depart, and no practical advantage seems to have resulted from it.

In the above article it will be found that we have strictly confined ourselves to China Proper. There are several other countries, some of them of immense extent, which are not included in it, but will be treated of in their proper places, such as CHINESE TARTARY, comprising the countries of Mongolia, Mantchoo, Thibet, &c.; COREA, the Loo-choo Islands, Formosa, Hainan, &c. most of them inhabited by races of men, distinct in manners, customs, and language; the description of which will more properly fall under their respective heads.

CHI'NA ORANGE, *n. s.* From China and orange. The sweet orange; brought originally from China.

Not many years has the *China orange* been propagated in Portugal and Spain. *Mortimer's Husbandry.*

CHI'NA ROOT, *n. s.* From China and root. A medicinal root; brought originally from China.

CHINCHOOR, a town in Hindostan, in the province of Aurungabad, between Bombay and Poonah. It is a neat place with good houses, and well supplied shops, pleasantly situated on the bank of a river, with about 5000 inhabitants, of whom there are 300 brahmin families. It is the residence of Chintamun Deo, whom the Mahrattas believe to be an incarnation of their deity, Goonputty. The present is the eighth from the first, and they alternately assume the names Chintamun Deo, and Narrain Deo. The Brahmins say, that, at the death of each, a small image of the deity arises from the ashes, which they deposit in the tomb and worship; and the Deo worships his other self in this form. He is further described as totally unmindful of worldly affairs, and unable to hold conversation beyond the simplest question and answer. He eats, drinks, takes wives, &c. like the other brahmins. In 1809 he was a boy of twelve years old. His palace, near the Moorta, is a vast but inelegant building, having its floors covered with the sacred cow-dung, and near it stand the tombs of the former deos, in the form of small temples surrounded by trees. Here the pilgrims and devotees perform their ablutions, but with the utmost listlessness and apathy; the women pouring oil, water, and milk, over the images of the gods, and the children dressing them with flowers.

CHINCLEPUT, a town and district on the coast of Hindostan, lying betweet Madras and the Palar river. After having been subject to a native chief called the Rayeel, it was conquered at the close of the seventeenth century by the Mahommedans, and made over by Nabob Mohammed Ali Khan in 1750, to the English East India Company, when it became more commonly known as the Jaghire district. The soil is poor and parched, but it has lately much recovered, and the district is the circuit of an English judge, collector of the company, &c. Chincleput, the capital, is situated on the north-east bank of the Palar River, thirty-nine miles from Madras, and is a fortress of some importance. It was taken by the French in the year 1751, but shortly after recovered by our forces, and, during the conflicts with Hyder Ali, always withstood his arms, and served as a depôt for stores.

CHI'NCOUGH, *n. s.* Perhaps more properly *kincough*, from *kinckin*, Dutch, to pant, and *cough*. A violent and convulsive cough, to which children are subject.

I have observed a *chincough*, complicated with an intermitting fever. *Floyer on the Humours.*

CHINCH, *n. s.* Span. *chinche;* Ital. *cimice;* Lat. *cimex*. A bug.

CHINE, *n. s.* & *v. a.* Fr. *echine;* Ital. *schienna*, from Lat. *spina*. The back bone; a piece of the back of an animal. To chine, is to cut into chines.

Cut out the burly boned clown in *chines* of beef ere thou sleep. *Shakspeare.*

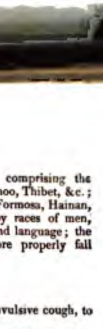
She strake him such a blow upon his *chine*, that she opened all his body. *Sidney.*

He presents her with the tusky head,
And *chine* with rising bristles roughly spread.
Dryden.

He that in his line did *chine* the long ribbed Apennine. *Id.*

He had killed eight fat hogs for this season, and he had dealt about his *chines* very liberally among his neighbours. *Spectator.*

Sometimes with oysters we combine,
Sometimes assist the savory *chine*,
From the low peasant to the lord,
The turkey smokes on every board. *Gay*



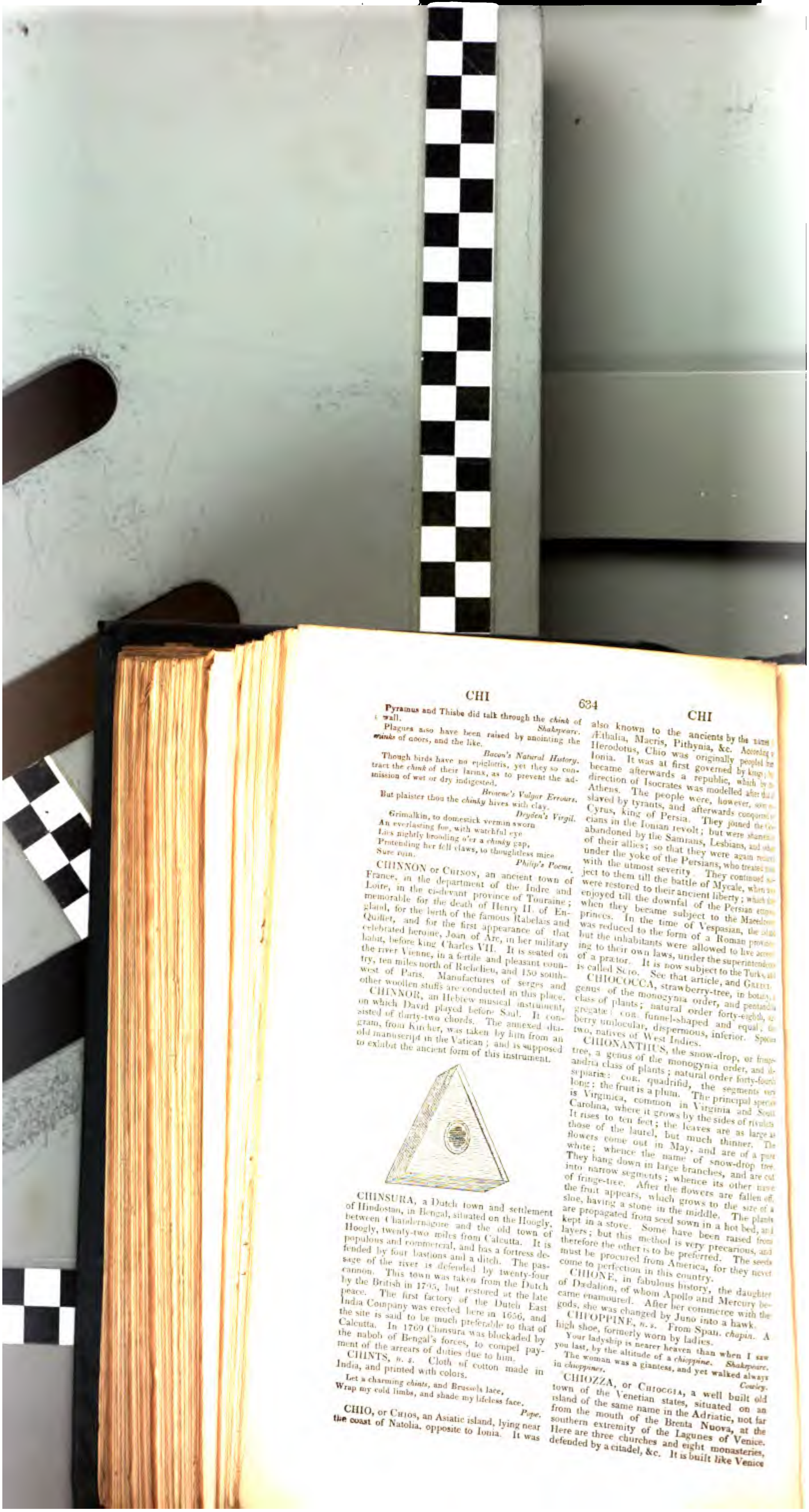
CHING, a Chinese musical instrument, formed by cutting off the neck of a gourd, and reserving the lower part, B. To this a cover is fitted, having as many holes as are equal to the number of sounds required. In each of these holes a pipe, C,C,C, made of bamboo is fixed, and it is shorter or longer according to the tone intended. The mouth of the instrument A, is formed of another pipe shaped like the neck of a goose; which is fixed to the gourd on one side, and serves to convey the air to all the pipes it contains; see the diagram.

CHINK, *v. a.* & *v. n.* Probably from gingle, to sound. To sound by shaking substances together, as pieces of money in a purse.

He *chinks* his purse, and takes his seat of state:
With ready quills the dedicators wait.
Pope's Dunciad.

Lord Strutt's money shines as bright, and *chinks* as well as 'squire South's. *Arbuthnot's History of John Bull.*

CHINK, *n. s.* } Sax. *cyna;* Goth. *ginca*,
CHI'NKY, *adj.* } from *gia*, *gina;* Sax. cinan; χαινω. A small opening; a crevice; a small aperture longwise; an opening or gap between the parts of anything. Full of holes; gaping, opening into narrow clefts



Pyramus and Thisbe did talk through the *chink* of a wall. *Shakspeare.*

Plagues also have been raised by anointing the *chinks* of doors, and the like. *Bacon's Natural History.*

Though birds have no epiglottis, yet they so contract the *chink* of their larinx, as to prevent the admission of wet or dry indigested. *Browne's Vulgar Errours.*

But plaister thou the *chinky* hives with clay. *Dryden's Virgil.*

Grimalkin, to domestick vermin sworn
An everlasting foe, with watchful eye
Lies nightly brooding o'er a *chinky* gap,
Protending her fell claws, to thoughtless mice
Sure ruin. *Philip's Poems.*

CHINNON or CHINON, an ancient town of France, in the department of the Indre and Loire, in the ci-devant province of Touraine; memorable for the death of Henry II. of England, for the birth of the famous Rabelais and Quillet, and for the first appearance of that celebrated heroine, Joan of Arc, in her military habit, before king Charles VII. It is seated on the river Vienne, in a fertile and pleasant country, ten miles north of Richelieu, and 150 south-west of Paris. Manufactures of serges and other woollen stuffs are conducted in this place.

CHINNOR, an Hebrew musical instrument, on which David played before Saul. It consisted of thirty-two chords. The annexed diagram, from Kircher, was taken by him from an old manuscript in the Vatican; and is supposed to exhibit the ancient form of this instrument.

CHINSURA, a Dutch town and settlement of Hindostan, in Bengal, situated on the Hoogly, between Chandernagore and the old town of Hoogly, twenty-two miles from Calcutta. It is populous and commercial, and has a fortress defended by four bastions and a ditch. The passage of the river is defended by twenty-four cannon. This town was taken from the Dutch by the British in 1795, but restored at the late peace. The first factory of the Dutch East India Company was erected here in 1656, and the site is said to be much preferable to that of Calcutta. In 1769 Chinsura was blockaded by the nabob of Bengal's forces, to compel payment of the arrears of duties due to him.

CHINTS, *n. s.* Cloth of cotton made in India, and printed with colors.

Let a charming *chints*, and Brussels lace,
Wrap my cold limbs, and shade my lifeless face. *Pope.*

CHIO, or CHIOS, an Asiatic island, lying near the coast of Natolia, opposite to Ionia. It was also known to the ancients by the name of Æthalia, Macris, Pithynia, &c. According to Herodotus, Chio was originally peopled from Ionia. It was at first governed by kings; but became afterwards a republic, which by the direction of Isocrates was modelled after that of Athens. The people were, however, soon enslaved by tyrants, and afterwards conquered by Cyrus, king of Persia. They joined the Grecians in the Ionian revolt; but were shamefully abandoned by the Samians, Lesbians, and other of their allies; so that they were again reduced under the yoke of the Persians, who treated them with the utmost severity. They continued subject to them till the battle of Mycale, when they were restored to their ancient liberty; which they enjoyed till the downfal of the Persian empire, when they became subject to the Macedonian princes. In the time of Vespasian, the island was reduced to the form of a Roman province; but the inhabitants were allowed to live according to their own laws, under the superintendence of a prætor. It is now subject to the Turks, and is called Scio. See that article, and GREECE.

CHIOCOCCA, strawberry-tree, in botany, a genus of the monogynia order, and pentandria class of plants; natural order forty-eighth, aggregatæ: COR. funnel-shaped and equal; the berry unilocular, dispermous, inferior. Species two, natives of West Indies.

CHIONANTHUS, the snow-drop, or fringe-tree, a genus of the monogynia order, and diandria class of plants; natural order forty-fourth, sepiariæ: COR. quadrifid, the segments very long; the fruit is a plum. The principal species is Virginica, common in Virginia and South Carolina, where it grows by the sides of rivulets. It rises to ten feet; the leaves are as large as those of the laurel, but much thinner. The flowers come out in May, and are of a pure white; whence the name of snow-drop tree. They hang down in large branches, and are cut into narrow segments; whence its other name of fringe-tree. After the flowers are fallen off, the fruit appears, which grows to the size of a sloe, having a stone in the middle. The plants are propagated from seed sown in a hot bed, and kept in a stove. Some have been raised from layers; but this method is very precarious, and therefore the other is to be preferred. The seeds must be procured from America, for they never come to perfection in this country.

CHIONE, in fabulous history, the daughter of Dædalion, of whom Apollo and Mercury became enamoured. After her commerce with the gods, she was changed by Juno into a hawk.

CHIOPPINE, *n. s.* From Span. *chapin.* A high shoe, formerly worn by ladies.

Your ladyship is nearer heaven than when I saw you last, by the altitude of a *chioppine.* *Shakspeare.*

The woman was a giantess, and yet walked always in *chioppines.* *Cowley.*

CHIOZZA, or CHIOGGIA, a well built old town of the Venetian states, situated on an island of the same name in the Adriatic, not far from the mouth of the Brenta Nuova, at the southern extremity of the Lagunes of Venice. Here are three churches and eight monasteries, defended by a citadel, &c. It is built like Venice on piles, and is the main safe-guard of that city. Population 20,000: fourteen miles south of Venice.

CHIP, Cheap, Chipping, in the names of places, imply a market; from the Saxon cýpban ceapan, to buy.

Chip, *v. a.* & *n. s.* } Swed. *kippa;* Teut.
Chi'pping, *n. s.* } *kippen.* Probably corrupted from chop. To cut into small pieces; to diminish, by cutting away a little at a time.

> His mangled Myrmidons,
> Noseless, handless, hackt and *chipt*, came to him,
> Crying on Hector. *Shakspeare. Troilus and Cressida.*

> To return to our statue in the block of marble, we see it sometimes only begun to be *chipped;* sometimes rough hewn, and just sketched into an human figure. *Addison's Spectator.*

> Cucumbers do extremely affect moisture, and overdrink themselves, which chaff or *chips* forbiddeth. *Bacon.*

> The *chippings* and filings of these jewels, could they be preserved, are of more value than the whole mass of ordinary authors. *Felton on the Classicks.*

> *Chipping* Norton has a market founded by one Norton. *Gazetteer.*

CHIPPENHAM, a borough and market town of Wiltshire, seated on the Avon. It has a handsome stone bridge, over the river, of sixteen arches; and sends two members to parliament. It was anciently a seat of King Alfred the Great, and was then one of the strongest towns in the kingdom. It has a market on Saturday, and four fairs. It carries on a manufacture of superfine woollen cloth, and lies twenty-one miles east of Bristol. and ninety-three west of London.

CHIPPEWAYS, or Chepeways, an Indian tribe in North America, who hunt on grounds surrounding the Sandy Lake, Leech Lake, Rainy Lake, Red Lake, Lake Winnipic, Otter Tail lake, the head of the Red River, and the Mississippi. Some of them are also found along the north side of Lakes Ontario and Erie, the sides of Lakes Michigan, Huron, and Superior, &c. They are said to be much attached to spirituous liquors, and to be almost at continual war with the Sioux, the most powerful native tribe of this continent; they would have been long ago dispersed, but the nature of the country excludes the possibility of an attack on horseback, a mode of warfare peculiar to the Sioux, and that by which they are so formidable to the other tribes. Their numbers amounted lately to 11,177, of which 2049 are warriors. In 1795 they made a formal peace with the United States.

Chippeway River, a river of Louisiana, which is tributary to the Mississippi, at its junction with which it is about half a mile wide. It communicates through the Montreal river with Lake Superior, and on its banks are found immense herds of elks and buffaloes.

Chippeway, or Chepewyan Fort, a strong post of the north-west company, situated on the Lake of the Hills. Here Mackenzie embarked for the Frozen Ocean in 1789.

Chipping, the flying off of small pieces, or breaking at the edges, of porcelain, stone, or earthern-ware; an accident common in these manufactures. Our earthen-wares are particularly subject to it, and are spoiled by it before any other flaw appears in them. Our stone wares escape it better; but not so well as the porcelain of China, which is less subject to it than any other manufacture in the world. The method by which the Chinese defend their wares from this accident, is this:—they carefully burn some small bamboo canes to a charcoal, which is very light, and very black; this they reduce to a fine powder, and then mix it into a thin paste, with some of the varnish they use for their ware; they next take the vessels when dried, and not yet baked, to the wheel; and turning them softly round, they, with a pencil dipt into this paste, cover the whole circumference with a thin coat of it; after this, the vessel is again dried; and the border made with this paste appears of a pale grayish color when it is thoroughly dry. They work on it afterwards in the common way, covering both this edge and the rest of the vessel with the common varnish. When the whole is baked on, the color given by the ashes disappears, and the edges are as white as any other part; only when the baking has not been sufficient, or the edges have not been covered with the second varnishing, we sometimes find a dusky edge, as in some of the ordinary thick tea-cups. It might be a great advantage to our English manufacturers to attempt something of this kind. The willow makes a very light and black charcoal; but the elder, though seldom used, greatly exceeds it. The young green shoots of this shrub, which are almost all pith, make the lightest and the blackest of all charcoal; this readily mixes with any liquid, and might be easily used in the same way that the Chinese use the charcoal of the bamboo cane, which is a light hollow vegetable, more resembling the elder shoots than any other English plant. The fixed salt and oil contained in this charcoal penetrates the yet raw edges of the ware, and gives them in the subsequent baking a somewhat different degree of vitrification from the other parts of the vessel; which, though, if given to the whole, it might take off from the true semi-vitrified state of that ware, yet at the edges is not to be regarded, and only serves to defend them from common accidents, and keep them entire. The Chinese use two cautions in this application: the first in the preparation, the second in the laying it on. They prepare the bamboo canes for burning into charcoal, by peeling off the rind. This might easily be done with our elder shoots, which are so succulent, that the bark strips off with a touch. The Chinese say, that if this is not done with their bamboo, the edges touched with the paste will burst in the baking. This does not seem indeed very probable; but the charcoal will certainly be lighter made from the peeled sticks, and this is a known advantage. The other caution is never to touch the vessel with hands that have any greasy or fat substance about them; for if this is done, they always find the vessel crack in that place.

CHIQUITOS, a tribe of native Indians, in Peru, on the west of the province of Santa Cruz de la Siërra. They inhabit a forest and unhealthy country, extending from lat. 16° to 20° south. The inhabitants, after several vain attempts to subdue them by arms, were induced in the middle of the last century by the persuasions of the Jesuits, to submit to the restraints and usages of civilised society, and the country was divided into settlements, which they maintained until the year 1767. Hunting, fishing, and gathering wild honey and bees' wax, together with a small manufacture of cotton, constitute the principal occupations of these tribes, whose trade with other countries is said to be still conducted through the medium of their catholic curates. A red and very venomous spider abounds here.

CHIRA'GRICAL, *adj.* From Lat. *chiragra.* Having the gout in the hand; subject to the gout in the hand.

> *Chiragrical* persons do suffer in the finger as well as in the rest, and sometimes first of all.
>
> *Browne's Vulgar Errours.*

CHIRIQUI, or CHIRIQUITA, a town of Mexico, in the province of Veragua, on the coast of the Pacific Ocean, with a harbour about three miles from the sea, and eight miles from the town. It is thirty leagues west of St. Jago.

CHIROGRAPH, an ancient deed, which, requiring a counterpart, was engrossed twice on the same piece of parchment, counterwise; leaving a space between, wherein was written chirograph; through the middle whereof the parchment was cut, sometimes straight, sometimes indentedly; and a moiety given to each of the parties. This was afterwards called dividenda, and chartæ divisæ; and was the same with what we now call charter-party. See CHARTER-PARTY. The first use of these chirographs in Britain was in the time of Henry III. Chirograph was also anciently used for a fine: and the manner of engrossing the fines, and cutting the parchment in two pieces, is still retained in the chirographer's office.

CHIRO'GRAPHER, *n. s.*
CHIRO'GRAPHIST, *n. s.*
CHIRO'GRAPHY, *n. s.*
Χειρ the hand, and γραφω to write. He that exercises or professes the art or business of writing.

> Thus passeth it from this office to the *chirographer's*, to be engrossed.
>
> *Bacon's Office of Alienation.*

CHIROGRAPHER OF FINES, an officer in the Common Pleas, who engrosses fines acknowledged in that court, into a perpetual record, (after they have been examined, and passed by other officers), and writes and delivers the indentures thereof to the party. He makes two indentures; one for the buyer, the other for the seller; and a third indented piece, containing the effect of the fine, and called the foot of the fine; and delivers it to the custos brevium. This officer, or his deputy, proclaims all fines in court every term, and indorses the proclamations on the back side of the foot; keeping the writ of covenant, and the note of the fine.

CHI'ROMANCY, *n. s.*
CHI'ROMANCER, *n. s.*
Χειρ the hand, and μαντις a prophet. The art of foretelling the events of life, by inspecting the hand.

> *Chiromancy* hath these aphorisms to foretell melancholy——The Saturnine line going from the rascetta through the hand, to Saturn's mount, and there intersected by certain little lines, argues melancholy; so if the vital and natural make an acute angle.
>
> *Burton's Anatomy of Melancholy.*

> There is not much considerable in that doctrine of *chiromancy*, that spots in the top of the nails do signify things past; in the middle, things present; and at the bottom, events to come.
>
> *Browne's Vulgar Errours.*

> The middle sort, who have not much to spare,
> To *chiromancers'* cheaper art repair,
> Who clap the pretty palm, to make the lines more fair.
>
> *Dryden's Juvenal.*

CHIROMANCY. See DIVINATION.

CHIRON, the son of Saturn and Phillyra, styled by Plutarch, in his Dialogue on Music, The Wise Centaur. Sir Isaac Newton places his birth in the first age after Deucalion's deluge. He is said to have been born in Thessaly among the Centaurs, who were the first Greeks that had acquired the art of breaking and riding horses; and was represented by the ancients as one of the first inventors of medicine, botany, and surgery. He inhabited a grotto at the foot of Mount Pelion, which, from his great fame, became the most frequented school throughout Greece. Almost all the heroes of his time were proud of receiving his instructions. It is pretended that Bacchus was the favorite scholar of the Centaur; of whom he learned the revels, orgies, bacchanalia, and other ceremonies of his worship. But among all the heroes who have been his disciples, no one reflected so much honor upon him as Achilles, whose renown he in some measure shared. Apollodorus tells us, that he taught him music, as a bridle to the impetuosity of his temper. One of the best remains of antique painting now existing, is a picture dug out of the ruins of Herculaneum, in which Chiron is teaching young Achilles to play on the lyre. The death of this philosophic musician was occasioned by an accidental wound in the knee with a poisoned arrow, shot by his scholar Hercules at another. He was placed by Musæus among the constellations, in gratitude for the great services which he had rendered the people of Greece.

CHIRONIA, in botany, a genus of the monogynia order, and pentandria class of plants; natural order, twentieth, rotaceæ: COR. wheel-shaped: PIST. declining downwards: STAM. placed in the tube of the corolla: ANTH. in their last stage spiral: SEED-CASE bilocular. There are eighteen species, of which the most remarkable is the C. frutescens, a native of the Cape of Good Hope. The root is fibrous, and spreads near the surface of the ground. The stalks round, and somewhat ligneous, but of a very soft texture. They rise from two to three feet high.

CHIROTHESIA, from χειρ, the hand, and τιθημι, to lay, the imposition of hands in conferring priestly orders.

CHIROTONIA, or CHIROTONY, from χειρ and τεινω, to stretch forth, in antiquity, the stretching forth, or holding up of hands, in electing magistrates, &c. This custom was first established in Greece; as appears from an oration of Demosthenes against Neæra, and that of Æschines against Ctesiphon: thence it passed to the Romans; and from profane authors it passed to ecclesiastical ones.

CHIRP, *v. a., v. n.* & *n. s.* } Perhaps contracted
CHI'RPER, *n. s.* } from cheer up. The Dutch have *circken*. To make a cheerful noise, as birds when they call without singing; to make cheerful; the voice of birds or insects. The audible expression of happiness from the various species of the feathered tribes of creation.

This frere ariseth up full curtisly,
And her embraceth in his armes narwe,
And kisseth her swete; and *chirketh* as a sparrow
With his lippes. *Chaucer.*

She *chirping* ran, he peeping flew away,
Till hard by them both he and she did stay. *Sidney.*

Came he right now to sing a raven's note;
And thinks he that the *chirping* of a wren
Can chase away the first conceived sound? *Shakspeare.*

No *chirping* lark the welkin sheen invokes. *Gay's Pastorals.*

Sir Balaam now, he lives like other folks;
He takes his *chirping* pint, and cracks his jokes. *Pope.*

Winds over us whispered, flocks by us did bleat,
And *chirp* went the grasshopper under our feet. *Spectator.*

The careful hen
Calls all her *chirping* family around. *Thomson's Spring.*

To CHIRRE, *v. n.* Sax. ceoꞃian. See CHURME. To coo as a pigeon.

CHI'RURGEON, *n. s.* } Χειρουργος, from
CHIRU'RGERY, *n. s.* } χειρ the hand, and
CHIRU'RGICAL, *adj.* } εργον work. One
CHIRU'RGICK, *adj.* } that cures ailments, not by internal medicines, but outward applications. It is now generally pronounced, and as generally written, surgeon. The art of curing by external applications. This is called surgery. Manual in general, consisting in operations of the hand. This sense, though the first according to etymology, is now scarce found.

Gynecia having skill in *chirurgery*, an art in those days much esteemed. *Sidney.*

The *chirurgical* or manual part doth refer to the making instruments, and exercising particular experiments. *Wilkins.*

When a man's wounds cease to smart, only because he has lost his feeling, they are nevertheless mortal, for his not seeing his need of a *chirurgeon* *South's Sermons.*

CHI'SEL, *v. a.* & *n. s.* Span. *sincel*; Fr. *ciseau*, *ciselle*; Lat. *scinda*. A carpenter's paring tool. To chisel, is to cut or pare with the instrument.

What fine *chisel*
Could ever yet cut breath? Let no man mock me,
For I will kiss her. *Shakspeare.*

Imperfect shapes: in marble such are seen,
When the rude *chisel* does the man begin. *Dryden.*

CHIRURGEON. See SURGEON.

CHISELS, or CHISSELS, cutting instruments, much used by carpenters and joiners, and in carving silver work, such as buckles, spoons, &c. There are chisels of different kinds; though their chief difference lies in their different size and strength, as being all made of steel well sharpened and tempered; but they have different names, according to the different uses to which they are applied. The chisels used in carpentry and joinery are, 1. The former; which is used first of all, just after the work is scribed. 2. The paring chisel; which has a fine smooth edge, and is used to pare off or smooth the irregularities which the former makes. This is not struck with a mallet as the former is, but is pressed down by the workman. 3. The skew-former, is used for cleansing acute angles with the point or corner of its narrow edge. 4. The mortise chisel is narrow, but very thick and strong, to endure hard blows, and it is cut to a very broad basil. Its use is to cut deep square holes in the wood for mortises. 5. The gouge, is a chisel with a round edge; one side whereof serves to prepare the way for an augre, and the other to cut such wood as is to be rounded, hollowed, &c. 6. Socket-chisels, are chiefly used by carpenters, &c. have their shanks with a hollow socket at top, to receive a strong wooden sprig, fitted into them with a shoulder. These chisels are distinguished, according to the breadth of the blade, into half-inch chisels, three-quarters of an inch chisels, &c. 7. The ripping chisel, is a socket-chisel of an inch broad, having a blunt edge with no basil. Its use is to rip or tear two pieces of wood asunder, by forcing in the blunt edge between them.

CHISHULL (Edmund), a divine of some celebrity in the last century, was born at Eyworth, in Bedfordshire, and educated at Corpus Christi college, Oxford. In 1692 he produced an elegant Latin poem, on the battle of La Hogue, and another, in 1694, on the death of queen Mary. Having obtained a travelling fellowship, he, in 1698, visited Turkey and the Levant; and settling at Smyrna, remained there for some years, as chaplain to the English factory. In 1705 we find him again at home, publishing the Answer to Dodwell's Discourse on the Mortality of the Soul. He obtained the vicarage of Walthamstow in 1708, and became afterwards chaplain to the queen. His most important works are, Inscriptio Sigæa Antiquissima, folio, 1721; A Dissertation on certain Medals struck at Smyrna in honor of Physicians, which he added to Dr. Mead's Harveian Oration, printed in 1724; and Antiquitates Asiaticæ Christianam æram Antecedentes, &c. folio. His death took place in 1733.

CHISLEY LAND, in agriculture, a soil of a middle nature, between sandy and clayey land, with a large admixture of pebbles.

CHISME, a sea-port of Natolia, seated on the strait that divides the continent from the Isle of Scio. It was the ancient Cyssus, and famous for the victory obtained here by the Romans over the fleet of Antiochus, A. A. C. 191. It has been no less distinguished in modern times by the total destruction of the Turkish fleet, by the Russians, in 1770. It is forty miles west of Smyrna.

CHISWICK, an extensive parish of Middlesex, comprising the hamlets of Turnham Green, Strand on the Green, and Little Sutton. It is principally noticed for the beautiful Roman villa of the duke of Devonshire, built by the celebrated Inigo Jones. The ascent to the house is by a noble double flight of steps, on one side of which is a statue of Palladio, and on the other that of Inigo Jones. The portico is supported by six fluted Corinthian pillars, with a pediment; and a dome at the top enlightens a beautiful octagonal saloon. Two wings have been added to the house from the designs of Mr. Wyatt, and fully remove the objection made by lord Hervey, who said, 'This house was too small to live in, and too large to hang to one's watch.' The gardens are laid out in the Italian style, and display all the beauties of modern planting. The church is a very old building; on the wall of the church-yard is the following curious inscription: 'This wall was made at ye charges of ye right honourable and trulie pious Lorde Francis Russel, duke of Bedford, out of true zeal and care for ye keeping of this church-yard, and ye wardrobe of God's saints, whose bodies lay therein buried, from violating by swine and other profanation, so witnesseth William Walker, V. A. D. 1623.' In this cemetery is the tomb of Hogarth, bearing the following epitaph, by Garrick:—

> 'Farewell, great painter of mankind,
> Who reach'd the noblest point of art;
> Whose pictured morals charm the mind,
> And through the eye correct the heart!
> If genius fire thee, reader, stay;
> If nature move thee, drop a tear;
> If neither touch thee, turn away:
> For Hogarth's honour'd dust lies here.'

It is four miles and a half west of London, and had the mingled cares and honors of giving birth to the present work.

CHIT, *v. n.* & *n. s.* } According to Dr
CHI'TTY, *adj.* } Hickes, from *kind*, Germ. child, perhaps from Span. *chico*, little.

A child; a baby. Generally used of young persons in contempt. Chitty is babyish, like a baby.

> These will appear such *chits* in story,
> 'Twill turn all politicks to jest. *Dryden.*

The shoot of corn from the end of the grain. A cant term with malsters.

> Barley, couched four days, will begin to show the *chit* or sprit at the root-end. *Mortimer's Husbandry.*

A freckle; from chick-peas. In this sense it is seldom used. The verb is used only in the sense of sprouting and shooting at the end of the grain. It is not legitimate.

> I have known barley *chit* in seven hours after it had been thrown forth. *Mortimer's Husbandry.*

CHITCHAT, *n. s.* Corrupted by reduplication from chat, says Johnson; but it is probably from chit and chat, the talk of a chit, of a baby. Prattle; idle prate; idle talk. A word only used in ludicrous conversation.

> I am a member of a female society, who call ourselves the *chitchat* club. *Spectator.*

CHITON, from χιτον, a coat of mail, in zoology, a genus of the order of vermes testaceæ. The shell is plated, and consists of many valves, lying upon each other transversely: the inhabitant is a species of doris. They are common on the shores of Scarborough, Aberdeen, and Lochbroom.

CHITORE, or CHETORE, a town and district of the province of Ajimere, Hindostan, subject to the ancient family of the ranah of Odeypore. It is bounded on the north by Mewar, on the east by Harrowly, on the south by Jalore, and on the west by Sarowy, and situated about the twenty-fifth degree of northern latitude, and between the seventy-fourth and seventy-fifth degrees of eastern longitude. The capital is a place of great natural strength. The Mahommedans possessed themselves of it in 1303, during the reign of Ala aud Deen, the scourge of the Hindoos. In 1567 it was taken by the sultan Acber, and once more subdued and plundered by Azim Ushaun, son of Aurengzebe, in 1680. It was taken in 1790 by Madajee Sindia, from Bheem Singh, a rebellious subject of the Odeypore rajahs, to whom it was restored; and the family now nominally hold it, but with little real power.

CHITPORE, the name of two towns of Hindostan, in the province of Gujerat: one belonging to an independent chief, and situated among mountains, in long. 70° 47′ E., lat. 21° 20′ N.; the other a large and flourishing place, belonging to the Mahrattas, and celebrated for its manufacture of very superior chintzes. It stands on the south bank of the Sursutty river, in lat. 23° 45′ N., long. 73° 3′ E.

CHITRO, a town of European Turkey, seated on the bay of Salonichi, in Macedonia, where the mother, wife, and son of Alexander the Great were murdered by Cassander. Near this town Perseus, the last king of Macedon, was defeated by the Romans. Long. 22° 35′ E., lat. 40° 20′ N.

CHITTAGONG, a large district in the south-east extremity of Bengal. The inhabitants may be comprised under two classes; the Choomeas, and the Kookies or Lunctas; the former are a civilised people, under a rajah, who pays an annual tribute to government; but the others are a wild, uncultivated race, of a dark complexion, and low stature, having broad faces, flat noses, and small eyes, like the Tartars, or Chinese. Their only occupations are hunting and war, in which they prefer surprise to open combat, marching in the night, and concealing themselves all day, so that some have entertained the idea, that they always lived in trees. When they succeed in taking any of their enemies villages, they put to death the males, and carry away the women and children for slaves. They are so revengeful, and so invariably require blood for blood, that if even a tiger kills one of them the whole tribe is in arms, and they never rest till they have slain him and roasted and eaten his flesh. The flesh of the elephant they consider a great dainty. The men are generally naked; the women have a petticoat of their own manufacture round their loins, reaching to the middle of the thigh; but both sexes occasionally use a large sheet to protect them from the cold. Their usual arms are bows and arrows, spears, clubs, and a sort of sword, which serves also for a hatchet; and they have shields made of the skin of the gyals, a kind of wild bull, but they have a great dread of fire-arms. Their houses are built on the tops of high hills, upon platforms of bamboo or timber, six feet or more from the ground, and are entered by ladders, or by a stick, with notches cut in it to receive the naked foot, and their goats and poultry lie underneath. They dig their ground, and plant their seed with a sharp stick. The productions of their country are rice, in great variety, Indian corn, a number of esculent roots, and a little tobacco. Salt they obtain from the Choomeas, in exchange for ivory, wax, and honey. Their domestic animals consist of gyals, goats, hogs, dogs, and fowls; like the Birmans, they have no sheep. The gyal is like the buffalo in shape, but much less in size, and its color is brown. The Kookies have but one wife, but concubinage prevails to a great extent; their marriages are attended with feasting and drinking an intoxicating liquor distilled from rice, by means of two earthen pots and a bamboo. The bodies of persons dying are laid on a stage, and guarded till a certain day in the year, when they are taken down and burned on one funeral pile. They have some rude ideas of God, and of a future state of rewards and punishments, and worship an image of their mediator, called Sheem Sauk, (probably Boodh, who is sometimes called Sauki), before which they place the heads of the slain, when they return from battle. They have no priests, but the master of every family instructs his children in his own way. Their language is similar to the Mugg or Arracan, and tribes of them are found in Ava and Cassay. See BENGAL, vol. iv. p. 24.

CHITTENDEN, a county in the state of Vermont, bounded on the north by Canada, on the south by Addison county, on the east by Orange, and on the west by Lake Champlain, which separates it from New York. It is fifty-nine miles long and fifty-seven broad. On Lake Champlain it is fertile, but in the east it is mountainous. It is divided into forty-four townships, and watered by the Lamoille, Michiscoui, and Onion rivers. Burlington is the chief town.

CHITTIM, in ancient geography, according to Le Clerc, Calmet, and others, was the same with Macedonia, peopled by Kittim, the son of Javan, the grandson of Noah. See KITTIM.

CHITTLEDROOG, a town and fortress in Hindostan, the chief place of a district belonging to the rajah of Mysore. It is built upon a rock, and so surrounded with fortifications, that it is thought by the natives to be impregnable. In 1776 Hyder Ali besieged it, but without success, until three years afterwards, when he took it by treachery, having bribed those of the garrison that were Mahommedans to deliver it up. At Tippoo's death it fell into the hands of the British, who gave it to the above mentioned rajah. The plain in its vicinity consists of a black soil, and is about ten miles in extent. Deep wells must be dug to get water, which is of a bad quality; it therefore produces little rice. The whole surrounding country is unhealthy, as is the case, the natives say, wherever the black soil prevails. At the conclusion of the last Mysore war Chittledroog was almost depopulated. Its latitude is about 14° N., and longitude 76° 30′ E., being about 115 miles north-west of Seringapatam.

CHITTOR, a town and fortress, the residence of a British judge and collector, in the south of India, eighty miles east of Madras. It was the capital of Tahir Khan's dominions, and well fortified, but taken in the year 1780 by Hyder Ali, and retaken the following year by Sir Eyre Coote. The garrison has long been withdrawn, and the place is not now considered strong.

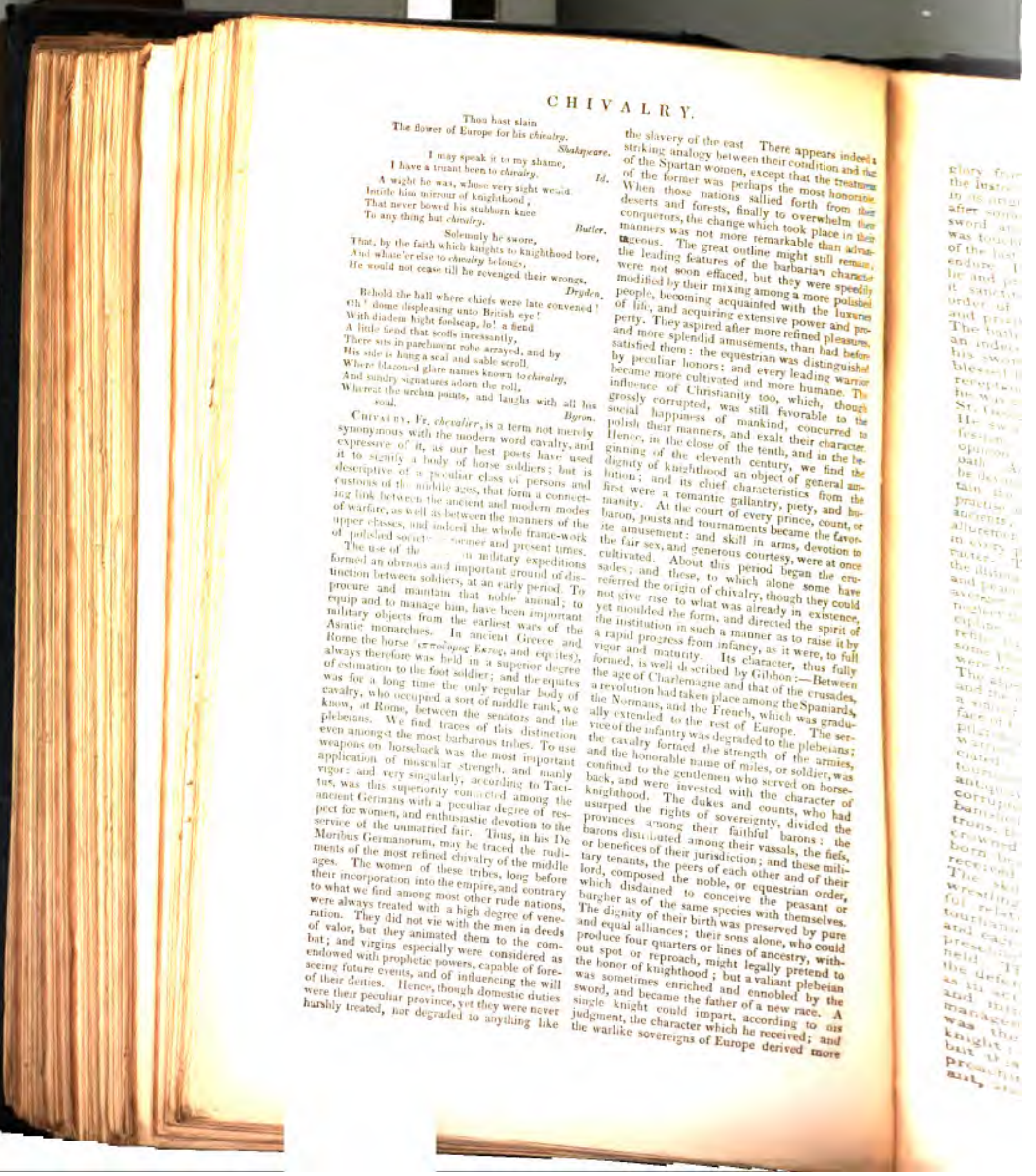
CHI'VALRY, *n. s.* } Fr. *chevalerie;* Ital.
CHI'VALROUS, *adj.* } *cavalleria*, from *cheval*, a horse, as *eques* in Latin. Knighthood; exploit; adventure; a military dignity; warlike; adventurous; daring; noble; qualities arising out of courage and danger; magnanimity and temptation. Generosity, honor, gallantry, contempt of death; devotion to chaste love and honorable arms. This is the poetry of the thing. Its reality does not read so well in history. As a term in law, it is thus explained by Cowell:—'Servitium militare, of the French chevalier; a tenure of land by knight's service. There is no land but is holden mediately or immediately of the crown, by some service or other; and therefore are all our freeholds, that are to us and our heirs, called feuda, fees, as proceeding from the benefit of the king. As the king gave to the nobles large possessions for this or that rent and service, so they parcelled out their lands, so received for rents and services, as they thought good; and those services are by Littleton divided into chivalry and soccage. The one is martial and military; the other clownish and rustic. Chivalry, therefore, is a tenure of service, whereby the tenant is bound to perform some noble or military office unto his lord; and is of two sorts; either regal, that is, such as may hold only of the king, or such as may also hold of a common person as well as of the king. That which may hold only of the king, is properly called sergeantry; and is again divided into grand or petit, i. e. great or small. Chivalry that may hold of a common person, as well as of the king, is called scutagium.'

This knight was comen, al newly
Fro tourneying there faste by,
Where he had done grete *chivalry*
Through his vertue and his maistrie;
And for the love of his lemman
He coste down many a doughty man.
Chaucer's Romaunt of the Rose.

Tarquinius! that art a kinges heyre,
And shouldest, as by linage and by right,
Done as a lorde and as a very knight;
Why hast thou done despite to *chivalry*?
Why hast thou done thy lady vilanie?
Alas of thee this was a vilianous dede.
Id. Legende. Lucrece.

O goodly golden chayne, wherewith yfere
The vertues linked are in lovely wize;
And noble mindes of yore allyed were
In brave poursuit of *chevalrous* emprize. *Spenser.*

The roiall virgin which beheld from farre,
In pensive plight and sad perplexitie,
The whole atchievement of this doubtful warre,
Came running fast to greet his victorie
With sober gladnesse and myld modestie;
And, with sweet ioyous cheare, him thus bespake:
Fayre braunch of noblesse, flower of *chevalrie!*
That with your worth the world amazed make,
How shall I quite the paynes ye suffer for my sake!
Id.



CHIVALRY.

Thou hast slain
The flower of Europe for his *chivalry*.
Shakspeare.

I may speak it to my shame,
I have a truant been to *chivalry*.
Id.

A wight he was, whose very sight would
Intitle him mirrour of knighthood,
That never bowed his stubborn knee
To any thing but *chivalry*.
Butler.

Solemnly he swore,
That, by the faith which knights to knighthood bore,
And whate'er else to *chivalry* belongs,
He would not cease till he revenged their wrongs.
Dryden.

Behold the hall where chiefs were late convened!
Oh! dome displeasing unto British eye!
With diadem hight foolscap, lo! a fiend
A little fiend that scoffs incessantly,
There sits in parchment robe arrayed, and by
His side is hung a seal and sable scroll,
Where blazoned glare names known to *chivalry*,
And sundry signatures adorn the roll,
Whereat the urchin points, and laughs with all his soul.
Byron.

Chivalry, Fr. *chevalier*, is a term not merely synonymous with the modern word cavalry, and expressive of it, as our best poets have used it to signify a body of horse soldiers; but is descriptive of a peculiar class of persons and customs of the middle ages, that form a connecting link between the ancient and modern modes of warfare, as well as between the manners of the upper classes, and indeed the whole frame-work of polished societ[illegible]ormer and present times.

The use of the [illegible] in military expeditions formed an obvious and important ground of distinction between soldiers, at an early period. To procure and maintain that noble animal; to equip and to manage him, have been important military objects from the earliest wars of the Asiatic monarchies. In ancient Greece and Rome the horse (ἱππεύοντες Ἱππεῖς, and equites), always therefore was held in a superior degree of estimation to the foot soldier; and the equites was for a long time the only regular body of cavalry, who occupied a sort of middle rank, we know, at Rome, between the senators and the plebeians. We find traces of this distinction even amongst the most barbarous tribes. To use weapons on horseback was the most important application of muscular strength, and manly vigor: and very singularly, according to Tacitus, was this superiority connected among the ancient Germans with a peculiar degree of respect for women, and enthusiastic devotion to the service of the unmarried fair. Thus, in his De Moribus Germanorum, may be traced the rudiments of the most refined chivalry of the middle ages. The women of these tribes, long before their incorporation into the empire, and contrary to what we find among most other rude nations, were always treated with a high degree of veneration. They did not vie with the men in deeds of valor, but they animated them to the combat; and virgins especially were considered as endowed with prophetic powers, capable of foreseeing future events, and of influencing the will of their deities. Hence, though domestic duties were their peculiar province, yet they were never harshly treated, nor degraded to anything like the slavery of the east. There appears indeed a striking analogy between their condition and that of the Spartan women, except that the treatment of the former was perhaps the most honorable. When those nations sallied forth from their deserts and forests, finally to overwhelm their conquerors, the change which took place in their manners was not more remarkable than advantageous. The great outline might still remain, the leading features of the barbarian character were not soon effaced, but they were speedily modified by their mixing among a more polished people, becoming acquainted with the luxuries of life, and acquiring extensive power and property. They aspired after more refined pleasures, and more splendid amusements, than had before satisfied them: the equestrian was distinguished by peculiar honors: and every leading warrior became more cultivated and more humane. The influence of Christianity too, which, though grossly corrupted, was still favorable to the social happiness of mankind, concurred to polish their manners, and exalt their character. Hence, in the close of the tenth, and in the beginning of the eleventh century, we find the dignity of knighthood an object of general ambition; and its chief characteristics from the first were a romantic gallantry, piety, and humanity. At the court of every prince, count, or baron, jousts and tournaments became the favorite amusement: and skill in arms, devotion to the fair sex, and generous courtesy, were at once cultivated. About this period began the crusades; and these, to which alone some have referred the origin of chivalry, though they could not give rise to what was already in existence, yet moulded the form, and directed the spirit of the institution in such a manner as to raise it by a rapid progress from infancy, as it were, to full vigor and maturity. Its character, thus fully formed, is well described by Gibbon:—Between the age of Charlemagne and that of the crusades, a revolution had taken place among the Spaniards, the Normans, and the French, which was gradually extended to the rest of Europe. The service of the infantry was degraded to the plebeians; the cavalry formed the strength of the armies, and the honorable name of miles, or soldier, was confined to the gentlemen who served on horseback, and were invested with the character of knighthood. The dukes and counts, who had usurped the rights of sovereignty, divided the provinces among their faithful barons: the barons distributed among their vassals, the fiefs, or benefices of their jurisdiction; and these military tenants, the peers of each other and of their lord, composed the noble, or equestrian order, which disdained to conceive the peasant or burgher as of the same species with themselves. The dignity of their birth was preserved by pure and equal alliances; their sons alone, who could produce four quarters or lines of ancestry, without spot or reproach, might legally pretend to the honor of knighthood; but a valiant plebeian was sometimes enriched and ennobled by the sword, and became the father of a new race. A single knight could impart, according to his judgment, the character which he received; and the warlike sovereigns of Europe derived more glory from this personal distinction than from the lustre of their diadem. This ceremony was in its origin simple and profane; the candidate, after some previous trial, was invested with his sword and spurs; and his cheek or shoulder was touched with a slight blow, as an emblem of the last affront which it was lawful for him to endure. But superstition mingled in every public and private action of life; in the holy wars, it sanctified the profession of arms, and the order of chivalry was assimilated in its rights and privileges to the sacred orders of priesthood. The bath and white garment of the novice, were an indecent copy of the regeneration of baptism; his sword, which he offered on the altar, was blessed by the ministers of religion; his solemn reception was preceded by fasts and vigils; and he was created a knight in the name of God, of St. George, and of St. Michael the archangel. He swore to accomplish the duties of his profession: and education, example, and the public opinion, were the inviolable guardians of his oath. As the champion of God and the ladies, he devoted himself to speak the truth; to maintain the right; to protect the distressed; to practise courtesy, a virtue less familiar to the ancients; to pursue the infidels; to despise the allurements of ease and safety; and to vindicate in every perilous adventure the honor of his character. The abuse of the same spirit provoked the illiterate knight to disdain the arts of industry and peace; to esteem himself the sole judge and avenger of his own injuries; and proudly to neglect the laws of civil society and military discipline. Yet the benefits of this institution, to refine the temper of barbarians, and to infuse some principles of faith, justice, and humanity, were strongly felt, and have been often observed. The asperity of national prejudice was softened; and the community of religion and arms spread a similar color and generous emulation over the face of Christendom. Abroad, in enterprise and pilgrimage; at home, in martial exercise, the warriors of every country were perpetually associated; and impartial taste must prefer a Gothic tournament to the Olympic games of classic antiquity. Instead of the naked spectacles which corrupted the manners of the Greeks, and banished from the stadium the virgins and matrons, the pompous decoration of the lists was crowned with the presence of chaste and high-born beauty, from whose hands the conqueror received the prize of his dexterity and courage. The skill and strength that were exerted in wrestling and boxing, bear a distant and doubtful relation to the merit of a soldier, but the tournaments, as they were invented in France, and eagerly adopted both in the east and west, presented a lively image of the business of the field. The single combats, the general skirmish, the defence of a pass or castle, were rehearsed as in actual service; and the contest, both in real and mimic war, was decided by the superior management of the horse and lance. The lance was the proper and peculiar weapon of the knight: his horse was of large and heavy breed: but this charger, till he was roused by the approaching danger, was usually led by an attendant, and he quietly rode a pad or palfrey, of a more easy pace. His helmet and sword, his greaves and buckler, it would be superfluous to describe; but I may remark, that, at the period of the crusades, the armor was less ponderous than in later times; and that, instead of a massy cuirass, his breast was defended by an hauberk, or coat of mail. When their long lances were fixed in the rest, the warriors furiously spurred their horses against the foe; and the light cavalry of the Turks and Arabs could seldom stand against the direct and impetuous weight of their charge. Each knight was attended to the field by his faithful squire, a youth of equal birth and similar hopes; he was followed by his archers and men at arms; and four, five, or six soldiers were computed as the furniture of a complete lance. In the expeditions to the neighbouring kingdoms, or the Holy Land, the duties of the feudal tenure no longer subsisted; the voluntary service of the knights and their followers was either prompted by zeal or attachment, or purchased with rewards and promises; and the numbers of each squadron were measured by the power, the wealth, and the fame of each independent chieftain. They were distinguished by his banner, his armorial coat, and his cry of war; and the most ancient families of Europe must seek in these achievements the origin and proof of their nobility.

Dr. Robertson eulogises the spirit of chivalry in a similar manner, and traces it to a later period. It arose, he says, naturally from the state of society at that period, and had a very serious influence in refining the manners of the European nations. The feudal state was a state of almost perpetual war, rapine and anarchy; during which the weak and unarmed were exposed to insults or injuries. The power of the sovereign was too limited to prevent these wrongs, and the administration of justice too feeble to redress them. The most effectual protection against violence and oppression was often found to be that which the valor and generosity of private persons afforded. The same spirit of enterprise which had prompted so many gentlemen to take arms in defence of the oppressed pilgrims in Palestine, incited others to declare themselves the patrons and avengers of injured innocence at home. When the final reduction of the holy land under the dominion of infidels put an end to these foreign expeditions, the latter was the only employment left for the activity and courage of adventurers. To check the insolence of overgrown oppressors; to rescue the helpless from captivity; to protect or to avenge women, protect orphans, and ecclesiastics, who could not bear arms in their own defence; to redress wrongs and to remove grievances, were deemed acts of the highest prowess and merit. Valor, humanity, courtesy, justice, honor, were the characteristic qualities of chivalry. To these were added religion, which mingled itself with every passion and institution during the middle ages, and, by infusing a large proportion of enthusiastic zeal, gave them such force as carried them to romantic excess. Men were trained to knighthood by a long previous discipline; they were admitted into the order by solemnities no less devout than pompous; every person of noble birth courted that honor; it was deemed a distinction superior to royalty; and monarchs were proud to receive it from the hands of private gentlemen.

This singular institution, in which valor, gallantry, and religion were so strangely blended, was wonderfully adapted to the taste and genius of martial nobles; and its effects were soon visible in their manners. War was carried on with less ferocity, when humanity came to be deemed the ornament of knighthood no less than courage. More gentle and polished manners were introduced, when courtesy was recommended as the most amiable of knightly virtues. Violence and oppression decreased, when it was reckoned meritorious to check and to punish them. A scrupulous adherence to truth, with the most religious attention to fulfil every engagement, became the distinguishing characteristic of a gentleman, because chivalry was regarded as the school of honor, and inculcated the most delicate sensibility with respect to those points. The admiration of these qualities, together with the high distinction and prerogatives conferred on knighthood in every part of Europe, inspired persons of noble birth on some occasions with a species of military fanaticism, and led them to extravagant enterprises. But they deeply imprinted on their minds the principles of generosity and honor. These were strengthened by every thing that can affect the senses or touch the heart. The wild exploits of these romantic knights who sallied forth in quest of adventures are well known, and have been treated with proper ridicule. The political and permanent effects of the spirit of chivalry have been less observed. Perhaps the humanity which accompanies all the operations of war, the refinements of gallantry, and the point of honor, the three chief circumstances which distinguish modern from ancient manners, may be ascribed in a great measure to this institution, which has appeared whimsical to superficial observers, but by its effects has proved of great benefit to mankind. The sentiments which chivalry inspired had a wonderful influence on manners and conduct, during the twelfth, thirteenth, fourteenth, and fifteenth centuries. They were so deeply rooted, that they continued to operate after the vigor and reputation of the institution itself began to decline.

Among our Anglo-Saxon ancestors there is little evidence of the refined chivalry of later periods: but in its less polished form of military investiture, conferred with religious ceremonies, it certainly subsisted. Ingulf, the secretary of William the conqueror thus relates an adventure in the life of Hereward, an Anglo-Saxon warrior of Edward the confessor's reign. Considering, says he, that he was at the head of very brave men, and commanded some milites, and had not yet been legally bound with the belt, according to the military custom, he took with him a very few tyros of his cohort, to be legitimately consociated with himself to warfare, and went to his uncle, the abbot of Peterborough, named Brand, a very religious man (as I have heard from my predecessor, my lord Ulketul, abbot, and many others), much given to charity, and adorned with all the virtues; and having first of all made a confession of his sins, and received absolution, he very urgently prayed that he might be made a legitimate miles. For it was the custom of the English, that every one that was to be consecrated to the legitimate militia, should, on the evening preceding the day of his consecration, with contrition and compunction, make a confession of all his sins to a bishop, an abbot, a monk, or some priest; and devoted wholly to prayers, devotions, and mortifications, should pass the night in the church; in the next morning should hear mass, should offer his sword on the altar, and after the gospel had been read, the priest having blessed the sword, should place it on the neck of the miles, with his benediction. Having communicated at the same mass with the sacred mysteries, he would afterwards remain a legitimate miles. This custom, of consecrating a miles, the Normans regarded as abomination, and did not hold such a one a legitimate miles, but reckoned him a slothful equitem and degenerate quiritem.

Sir Walter Scott, in one of the most elegant and amusing of his prose productions, furnishes us with some striking illustrations of the enthusiasm of this spirit. 'Among the earliest instances of the use of the English language at the court of the Norman monarchs,' he says, 'is the distich painted in the shield of Edward III. under the figure of a white swan, being the device which that warlike monarch wore at a tournay, at Windsor.

Ha! ha! the white swan,
By God his soul, I am thy man.

'The choice of these devices was a very serious matter; and the usurpation of such as any knight had previously used and adopted, was often the foundation of a regular quarrel, of which many instances occur in Froissart and other writers.

'The ladies, bound as they were in honor to requite the passion of their knights, were wont, on such occasions, to dignify them by the present of a scarf, ribbon, or glove, which was to be worn in the press of battle and tournament. These marks of favor they displayed on their helmets, and they were accounted the best incentives to deeds of valor. The custom appears to have prevailed in France to a late period, though polluted with the grossness so often mixed with the affected refinement and gallantry of that nation. In the attack made by the Duke of Buckingham upon the Isle of Rhé, favors were found on the persons of many of the French soldiers who fell at the skirmish on the landing.

'Sometimes the ladies, in conferring these tokens of their favor, clogged them with the most extravagant and severe conditions. But the lover had this advantage in such cases, that if he ventured to encounter the hazard imposed, and chanced to survive it, he had, according to the fashion of the age, the right of exacting, from the lady, favors corresponding in importance. The annals of chivalry abound with stories of cruel and cold fair ones who subjected their lovers to extremes of danger, in hopes that they might get rid of their addresses, but were, upon their unexpected success, caught in their own snare, and, as ladies who would not have their name made the theme of reproach by every minstrel, compelled to recompense the deeds which their champion had achieved in their name. There are instances in which the lover used his right of reprisals with some rigor, as in the well known *fabliau* of the three knights and the shift; in which a lady proposes to her three lovers, successively, the task of entering, unarmed, into the melée of a tournament arrayed only in one of her shifts. The perilous proposal is declined by two of the knights and accepted by the third, who thrusts himself, in the unprotected state required, into all the hazards of the tournament, sustains many wounds, and carries off the prize of the day. On the next day the husband of the lady (for she was married) was to give a superb banquet to the knights and nobles who had attended the tourney. The wounded victor sends the shift back to its owner, with his request, that she would wear it over her rich dress on this solemn occasion, soiled and torn as it was, and stained all over with the blood of its late wearer. The lady did not hesitate to comply, declaring that she regarded this shift, stained with the blood of her 'fair friend, as more precious than if it were of the most costly materials.' Jaques de Basin, the minstrel, who relates this curious tale, is at a loss to say whether the palm of true love should be given to the knight or to the lady on this remarkable occasion. The husband, he assures us, had the good sense to seem to perceive nothing uncommon in the singular vestment with which his lady was attired, and the rest of the good company highly admired her courageous requital of the knight's gallantry.

Sometimes the patience of the lover was exhausted by the cold-hearted vanity which thrust him on such perilous enterprises. At the court of one of the German Emperors, while some ladies and gallants of the court were looking into a den where two lions were confined, one of them purposely let her glove fall within the palisade which enclosed the animals, and commanded her lover, as a true knight, to fetch it out to her. He did not hesitate to obey; jumped over the enclosure; threw his mantle towards the animals as they sprung at him; snatched up the glove, and regained the outside of the palisade. But when in safety, he proclaimed aloud, that what he had achieved was done for the sake of his own reputation, and not for that of a false lady, who could for her sport and cold-blooded vanity force a brave man on a duel so desperate. And, with the applause of all present, he renounced her love for ever. This, however, was an uncommon circumstance. In general, the lady was supposed to have her lover's character as much at heart as her own, and to mean, by pushing him upon enterprises of hazard, only to give him an opportunity of meriting her good graces, which she could not with honor confer upon one undistinguished by deeds of chivalry. An affecting instance is given by Godscroft.

At the time when the Scotch were struggling to recover from the usurpation of Edward I., the castle of Douglas was repeatedly garrisoned by the English, and these garrisons were as frequently surprised, and cut to pieces by the good lord James of Douglas, who, lying in the mountainous wilds of Cairntable, and favored by the intelligence which he maintained among his vassals, took opportunity of the slightest relaxation of vigilance to surprise the fortress. At length, a fair dame of England announced to the numerous suitors who sought her hand, that she would confer it on the man who should keep the perilous castle of Douglas (so it was called) for a year and a day. The knight who undertook this dangerous task at her request discharged his duty like a careful soldier for several months, and the lady relenting at the prospect of his continued absence, sent a letter to recall him, declaring she held his probation as accomplished. In the meantime, however, he had received a defiance from Douglas, threatening him, that, let him use his utmost vigilance, he would recover from him his father's castle before Palm-Sunday. The English knight deemed that he could not in honor leave the castle till this day was past; and on the very eve of Palm-Sunday was surprised and slain with the lady's letter in his pocket.—*Supplement to the Encyclopædia Britannica, article* CHIVALRY.

The joust and the tournament, while exercises of personal strength and schools of military discipline, were also amusements of the privileged orders of society. Froissart preserves a singular challenge to 'a deed of arms,' sent by Louis, Duke of Orleans, to our Henry IV., in which he says, 'considering idleness to be the bane of lords of high birth, which do not employ themselves in arms,' he thought he could 'in no way better seek renown,' than in proposing to meet Henry at an appointed place, with one hundred knights and esquires, 'and with the usual arms,' that is to say, 'lance, battle-axe, sword and dagger, each to employ them as he shall think most to his advantage, without aiding himself by any bodkins, hooks, bearded darts, poisoned needles, or razors, as may be done (this is a singular admission) by persons unless they be positively ordered to the contrary. Several of the varieties that are found in ancient helmets, in the structure of the lance, &c. owe their origin to their being used in the amusements of the tilt or tournament field, as distinguishable from those designed for serious combat in war.

Chivalry, in its most polished forms, appears to have been first exhibited in this country in the reign of William II., and to have flourished in its maturity under the auspices of Edward the Black Prince.

But these occupations for 'idleness,' being confined by the rules of chivalry to the great, burgesses and yeomen established certain imitations of them; thus we have the troy game of the Roman youths performed among 'great crowds of Londoners,' in the reigns of our Stephen and Henry II., both on land and water. A species of wooden shields was tilted against in boats on the bosom of father Thames, or suspended from a stake fixed on the ground. Similar sports are traced in Oxfordshire and throughout the country. It was particularly accounted an Easter holiday amusement.

The wager of battle, a legal appeal in this country within the last ten years, may be said to have been our final relic of chivalrous justice. It was the right of persons of all degrees thus to terminate certain suits, and particularly that of a near relative of a slain man, to challenge a supposed murderer, although a jury should acquit him. In the memorable combat scene of Ivanhoe, vol. iii. p. 323, 345, our great historical novelist has forcibly depicted the sincere and solemn feelings of our forefathers on many of these occasions, and Shakspeare alludes to the custom both as practised among the higher and lower ranks. The royal championship of England still rests on the foundation of this ancient appeal, and conveys the fair manor of Scrivelsby 'by grand serjeantry; to wit, by the service of finding, on the day of coronation, an armed knight who shall prove by his body, if need be, that the king is true and lawful heir to the kingdom.' So that this splendid exhibition of ancient feudal service is not likely to be soon discontinued; although the legal wager of battle, in all other cases, was finally abolished during the regency of his present Majesty, 59 Geo. III. cap. 46.

CHIVAS, or CHIVASSO, a strong town of Piedmont, situated in a plain near the union of the Doria and the Po. It is defended with walls, bastions, and large fosses filled with water; it is well supplied with artillery and a numerous garrison, especially in the time of war. The situation is so advantageous that whoever are masters of this town are said to possess the key of the country of Turin, and of Lombardy. It has several churches and convents. It was taken by the French in 1705, and afterwards re-taken by the allies; and in 1798 it surrendered to the French republicans, though the garrison consisted of 800 men. It lies eleven miles north-east of Turin, and twelve south of Ivrea.

CHIVES, *n. s.* Ital. *cima*; Lat. *cyma*. The threads or filaments rising in flowers with seeds at the end.

The masculine or prolific seed contained in the *chives* or apices of the stamina. *Ray on the Creation.*

CHIVES, *n. s.* Fr. *cives*; Lat. *cepe*. Very small onions.

CHIVES. See BOTANY, Index.

CHIUM MARMOR, Chian marble, in the natural history of the ancients, the name of a black marble, called also the lapis opsidianus. It is very hard, and of a fine black, and is well known among goldsmiths by the name of the touchstone; it being much used for this purpose: though the basaltes is preferable. This is a very fine and elegantly smooth marble, of a compact texture, and fine glossy black, but showing no glittering particles when fresh broken, as most of the black marbles. The ancients had it from Ethiopia and the island of Chios; it is now found in Italy.

CHIUM VINUM, Chian wine, or wine of the growth of the island of Chios, is commended by Dioscorides as affording good nourishment, fit to drink, less disposed to intoxicate, endued with the virtue of restraining defluxions, and a proper ingredient in opthalmic medicines. Hence Scribonius Largus directs the dry ingredients of collyria for the eyes to be made up with Chian wine.

CHIUSI, a city of Italy, in Tuscany, anciently called Clusium, and one of the twelve ancient cities of Etruria. It is the see of a bishop, and, being unhealthy, is not populous. It is celebrated for its marble. It lies thirty-five miles south-east of Sienna. Long. 10° 52′ E., lat. 43° 2′ N.

CHUTAYE, a considerable town of Asiatic Turkey the capital of Natolia Proper, seated at the foot of a mountain, in a fertile and healthy country, defended by a castle built on a rock. It contains several mosques, and three Armenian churches. It was the residence of the grand seignior before the taking of Adrianople. Long. 30° 47′ E., lat. 39° 30′ N.

CHLAMYS, in antiquity, a military habit worn by the ancients over the tunica. It belonged to the patricians, and answered in time of war to the toga in time of peace. This sort of gown was called picta from the rich embroidery with figures in Phrygian work; and purpurea, because the ground work was purple. The chlamydes of the emperors were all purple, adorned with a golden embroidered border.

CHLOEIA, in antiquity a festival celebrated at Athens in honor of Ceres, to whom under the name Χλοη, i. e. grass, they sacrificed a ram.

CHLORA, in botany, a genus of the monogynia order, and octandria class of plants: CAL. octophyllous: COR. monopetalous and octofid: CAPS. unilocular, bivalved, and polyspermous. [illegible] species; chiefly natives of America, and the south of Europe; but C. perfoliata is indigenous to the pastures of our own country, and named yellow centaury.

CHLORANTHUS, in botany, a genus of plants of the class tetrandria and order monogynia: CAL. none: COR. petal three-lobed, seated by the side of the germ; anthers growing to the petal; SEED monospermous berry. Species one only; a fleshy shrub, native of Japan.

CHLORIC ACID, in chemistry. This acid was first discovered by Gay Lussac in pouring weak sulphuric acid on a solution of chlorate of barytes, or, as it was originally called, hyperoxymuriate of barytes. By adding the sulphuric acid with caution, he at length obtained a liquid entirely free both from barytes and sulphuric acid, which was the chloric acid in water. This acid has neither smell nor color; it is decomposed by heat into oxygen and chlorine, but part is generally volatilised without alteration. The muriatic and sulphurous acids, and sulphureted hydrogen, act upon it in a similar manner, but no change is produced by the application of nitric acid. When mixed with muriatic acid water is formed, and both acids are converted into chlorine. Chloric acid combines with bases, and forms the chlorates long known by the name of the hyperoxygenised muriates. They may be formed either by saturating the base with the chloric acid, or by the old process of transmitting chlorine through their solutions, in Woolfe's bottles. Chlorate of potash has been long well known as hyperoxymuriate of potash, and is procured by introducing chlorine as it is formed, into a solution of the salt. When the solution is saturated, evaporate it gently, and the first crystals produced will be the salt desired, this crystallising before the simple muriate, which is produced soon after. Its crystals are in shining hexahedral laminæ, or rhomboidal plates. It is soluble in seventeen parts of cold water; and, but very sparingly, in alcohol. Its taste is cooling and rather unpleasant. Its specific gravity is 2·0. The purest oxygen is extracted from this salt, by exposing it to a gentle red heat. 100 grains yield about 115 cubic inches of gas. It consists of 9·5 chloric acid + 6 potash = 15·5, which is the prime equivalent of the salt. If this salt be combined with sulphur, it produces a strong detonating powder, as it does with either phosphorus, common sugar, or charcoal. Phosphorus may also be inflamed by it under water, by putting into a glass, nearly filled with that liquid, one part of phosphorus to two parts of chlorate; and pouring through a syphon immersed in the glass, three or four parts of sulphuric acid. All these experiments, however, are very dangerous, and should never be undertaken but by those who have correct knowledge of the power of the substances employed.

Chlorate of soda is procured in a similar manner to the preceding, but, on account of its easy solubility in water, is difficult to obtain separate from the muriate. Vauquelin formed it by saturating chloric acid with soda; 500 parts of the dry carbonate yielding 1100 parts of crystallised chlorate. It consists of 4 soda + 9·5 acid = 13·5, which is its prime equivalent. Its other properties so nearly resemble chloride of potash, that they need no repetition.

Chlorate of barytes, from which the acid was first obtained, is best formed by passing chlorine through a solution of that earth in warm water, but, as this also forms some common muriate, the latter must be separated by boiling with it phosphate of silver, which will neutralise the muriate, and the chlorate may then be obtained by simple evaporation. Chlorate of strontite, and the chlorate of lime, are obtained in the same manner, and are both deliquescent and cool in the mouth, and easily soluble in alcohol, as is also the chlorate of magnesia, which is obtained by the same method. The chlorate of ammonia is formed by double affinity, the carbonate of ammonia decomposing the earthy salts of this genus, giving up its carbonic acid to their base, and combining with their acid into chlorate of ammonia. Chlorate of lime is now employed with great advantage as a disinfectant, and on that account becomes a powerful agent in the dissecting room.

Chlorate of alumina has never yet been obtained separate. See CHEMISTRY.

CHLORINE, in chemistry, the modern name for the oxymuriatic acid gas of the French, and given to it on account of its green-yellow color. Sir H. Davy having in vain tried every known method of decomposition on this substance pronounced it an element, and it was therefore thought improper to apply the term oxymuriatic to that which could contain no oxygen, and from which no muriatic acid could be extracted. In the Philosophical Transactions for 1809 first appeared the researches of that eminent chemist on oxymuriatic acid.

'In the Bakerian lectures for 1808,' says Sir Humphry, 'I have given an account of the action of potassium upon muriatic acid gas, by which more than one-third of its volume of hydrogen is produced; and I have stated, that muriatic acid can, in no instance, be procured from oxymuriatic acid, or from dry muriates, unless water or its elements be present.

'In the second volume of the Mémoires D'Arcueil, M.M. Gay Lussac and Thenard have detailed an extensive series of facts upon muriatic acid, and oxymuriatic acid. Some of their experiments are similar to those I have detailed in the paper just referred to; others are peculiarly their own, and of a very curious kind: their general conclusion is, that muriatic acid gas contains about one quarter of its weight of water; and that oxymuriatic acid is not decomposable by any substances but hydrogen, or such as can form triple combinations with it.

'One of the most singular facts that I have observed on this subject, and which I have before referred to, is that charcoal, even when ignited to whiteness in oxymuriatic or muriatic acid gases, by the voltaic battery, effects no change in them, if it has been previously freed from hydrogen and moisture by intense ignition in vacuo.

'This experiment, which I have several times repeated, led me to doubt of the existence of oxygen in that substance, which has been supposed to contain it, above all others, in a loose and active state; and to make a more rigorous investigation than had hitherto been attempted for its detection.'

Although some envious attempts have been made to give the honor of this discovery to the French chemists, we consider the fact too well established to need any discussion. Indeed so far from the chloridic theory originating in France, it was only the researches on iodine, so admirably conducted by M. Gay Lussac, that, by their auxiliary attack on the oxygen hypothesis, eventually opened the minds of its adherents to the evidence long before advanced by Sir H. Davy. The following are the most remarkable experiments of Sir Humphry, which we abridge from Dr. Ure:—

If oxymuriatic acid gas be introduced into a vessel exhausted of air, containing tin, and the tin be gently heated, and the gas in sufficient quantity, the tin and the gas disappear, and a limpid fluid, precisely the same as Libavius's liquor, is formed. If this substance is a combination of muriatic acid and oxide of tin, oxide of tin ought to be separated from it by means of ammonia. He admitted ammoniacal gas over mercury to a small quantity of the liquor of Libavius; it was absorbed with great heat, and no gas was generated; a solid result was obtained, which was of a dull white color: some of it was heated, to ascertain if it contained oxide of tin; but the whole volatilised, producing dense pungent fumes.

He made a considerable quantity of the solid compound of oxymuriatic acid and phosphorus by combustion, and saturated it with ammonia, by heating it in a proper receiver filled with ammoniacal gas, on which it acted with great energy, producing much heat; and they formed a white opaque powder. Supposing that this substance was composed of the dry muriates and phosphates of ammonia; as muriate of ammonia is very volatile, and as ammonia is driven off from phosphoric acid by a heat below redness, he conceived that, by igniting the product obtained, he should procure phosphoric acid; he therefore introduced some of the powder into a tube of green glass, and heated it to redness, out of the contact of air, by a spirit lamp; but found, to his great surprise, that it was not at all volatile, nor decomposable at this degree of heat, and that it gave off no gaseous matter.

He caused strong explosions from an electrical jar to pass through oxymuriatic gas, by means of points of platina, for several hours in succession, but it seemed not to undergo the slightest change.

He electrised the oxymuriates of phosphorus and sulphur for some hours, by the power of the voltaic apparatus of 2000 double plates, in which the discharge was from platina wires, and in which the mercury used for confining the liquor was carefully boiled, and there was no production of any permanent elastic matter.

He mixed together sulphureted hydrogen in a high degree of purity, and oxymuriatic acid gas, both dried, in equal volumes. In this instance the condensation was not $\frac{1}{20}$; sulphur, which seemed to contain a little oxymuriatic acid, was formed on the sides of the vessel; no vapor was deposited, and the residual gas contained about $\frac{13}{18}$ of muriatic acid gas, and the remainder was inflammable.

Sir. H. Davy used in all cases small retorts of green glass, containing from three to six cubical inches, furnished with stop-cocks. The metallic substances were introduced, the retort exhausted and filled with the gas to be acted upon, heat was applied by means of a spirit lamp, and after cooling the results were examined, and the residual gas analysed.

All the metals that he tried, except silver, lead, nickel, cobalt, and gold, when heated, burnt in the oxymuriatic gas, and the volatile metals with flame. Arsenic, antimony, tellurium, and zinc, with a white flame, mercury with a red flame. Tin became ignited to whiteness, and iron and copper to redness; tungsten and manganese to dull redness; platina was scarcely acted upon at the heat of fusion of the glass.

The product from mercury was corrosive sublimate. That from zinc was similar in color to that from antimony, but was much less volatile.

Silver and lead produced horn-silver and horn-lead; and bismuth, butter of bismuth.

In acting upon metallic oxides by oxymuriatic gas, he found that those of lead, silver, tin, copper, antimony, bismuth, and tellurium, were decomposed in a heat below redness, but the oxides of the volatile metals more readily than those of the fixed ones. The oxides of cobalt and nickel were scarcely acted upon at a dull red heat. The red oxide of iron was not affected at a strong red heat, whilst the black oxide was readily decomposed at a much lower temperature; arsenical acid underwent no change at the greatest heat that could be given it in the glass retort, whilst the white oxide readily decomposed.

In cases where oxygen was given off, it was found exactly the same in quantity as that which had been absorbed by the metal. Thus two grains of red oxide of mercury absorbed ½ a cubical inch of oxymuriatic gas, and afforded 0·45 of oxygen. Two grains of dark olive oxide from calomel decomposed by potash, absorbed about $\frac{24}{100}$ of oxymuriatic gas, and afforded $\frac{1}{10}$ of oxygen, and corrosive sublimate was produced in both cases.

Chlorine if taken into the lungs, even much diluted with air, occasions a sense of strangulation, constriction of the thorax, and a copious discharge from the nostrils. If respired in large quantity it excites violent coughing, with spitting of blood, and would speedily destroy the individual.

Water condenses 1½ times its own volume of this gas at 68° Fahr., which is known by the name liquid chlorine. This mixture at 40° Fahr. congeals into yellow crystals, which suddenly exposed to the sun's rays, detonate with considerable force; and chlorine if mixed with nitrogen also makes a violent explosion. See CHEMISTRY, *Nitrogen*. The principal use of this gas, in the arts, is in bleaching, as it turns all vegetable colors of a fine white if mixed with a very small quantity of water. For euchlorine and perchlorate, see CHEMISTRY.

CHLORIODIC ACID. The discovery of this acid is another of the contributions of Sir H. Davy to the progress of science. In a communication from Florence to the Royal Society, in March, 1814, he gives a curious detail of its preparation and properties. He formed it by admitting chlorine in excess to known quantities of iodine, in vessels exhausted of air, and repeatedly heating the sublimate. For a description of this acid, see CHEMISTRY.

CHLORIS, in botany, a genus of plants class polygamia, order monœcia: male; CAL. glume bi-valved, two-flowered and awned: COR. none; stamens three; styles two: SEED one: female sessile: CAL. two-valved glume. Species five, all natives of the West Indies.

CHLOROCYANIC ACID, the mixture of hydrocyanic acid with chlorine, by which the former acquires entirely new properties: first discovered by M. Berthollet. It formerly had the name of oxyprussic because it was supposed to have acquired oxygen, but on examination by M. Gay Lussac it was found to consist of equal volumes of chlorine and cyanogen, whence its new name. For a description of its properties, see CHEMISTRY, 529.

CHLOROSIS, *n. s.* From χλωρος, green. The green sickness.

CHLOROSIS, in medicine, a genus of disease in the class chachexiæ, and order impetigines of Cullen. It is a disease which affects young females, who labor under a suppression of the menses. The general characteristics of the complaint are heaviness, fatigue on the least exercise, palpitations of the heart, pains in the back, loins, and hip, and acidity of the stomach.

CHOAK. See CHOKE.

CHOASPES, in ancient geography, a river in the north of Persia, which, after passing Susa, falls into the gulph of Bassora. It is supposed to be the Ulai mentioned by Daniel, chap. viii. 2. Its water is said to have been so excellent, that the Persian monarchs had it always carried along with them when they travelled.

CHOCO, a woody province of Colombia, South America, separated from the valley of the Cauca, by the western chain of the Andes. It is bounded on the north by Darien and Carthagena, on the west by the Pacific, on the east by Antioquia, and on the south by Popayan. Here are various Negro settlements connected with the mines; and the whole province may contain 5000 persons: but it is very unproductive, without roads, and without pasture. The first Spanish settlers came here about 1539. Platina is the most remarkable production of this and the neighbouring province of Antioquia. Here it is found only in grains and in alluvious grounds between the second and sixth degrees of north latitude. The ravine of Oro, between the towns of Tado and Nevita, yields it in great quantity. On the spot the price is about £1. 13*s*. English per pound.

The Atrato, formed by the Junction of the San Juan, Quito, Angeda, and Zitara, is the principal stream. It is said that there has existed in this province, an actual communication between the Atlantic and Pacific Oceans since the year 1788: for at that period a monk of Zitara, in the ravine of Raspadura, caused a small canal to be dug, by which the rains are conducted across it, and unite the San Juan with the Quito, so that canoes loaded with cacao frequently pass from one ocean to the other, a distance in this direction of about seventy-five leagues. Valuable gold washings are found in Novita, Zitara, and the river Andegada: all the ground between this river, the river San Juan, the river Tamana, and the river San Augustin, is auriferous. Twenty-five pounds was the weight of the largest piece of gold ever found in Choco; but the negro who discovered it did not even obtain his liberty. His master sent it to the king's cabinet, in hopes of obtaining a title; but it was with difficulty that he obtained even the value of its weight. Ten thousand eight hundred gold marks are about the annual produce of the washings of Choco; the metal being about twenty-one carats fine. The principal settlements are Novita, Zitara, and Tado.

In the coast district of Biriquite is the settlement of Noanamas, which is situated on a river of that name 170 miles north-west of Popayan. The district contains some few of the native tribes who are independent. It was discovered by Pizarro, who called the people Pueblo Quemado, or the burnt people.

CHO'COLATE, *n. s.* } Fr. *chocolat;*
CHO'COLATE HOUSE, *n. s.* } Ital. *cioccolata.*
A cake or mass formed of the kernel of the cacao nut, with other substances; and the liquor made from it. Chocolate house is a house of entertainment where chocolate is provided as the chief beverage.

> For wine and strong drink make tumults encrease,
> *Chocolate*, tea, and coffee are liquors of peace;
> No quarrels or oaths are among those who drink 'em,
> 'Tis Bacchus and the brewer swear damn 'em and sink 'em. *Marvell.*

> In fumes of burning *chocolate* shall glow,
> And tremble at the sea that froths below! *Pope.*

> The Spaniards were the first who brought *chocolate* into use in Europe, to promote the consumption of their cacao-nuts, achiot, and other drugs, which their West Indies furnish, and which enter the composition of *chocolate*. *Chambers.*

> Ever since that time, Lisander has been twice a day at the *chocolate-house*. *Tatler.*

CHOCOLATE, the substance made by grinding the nut of the cacao with vanillas and other herbs, to be dissolved in hot water. The Indians, in their first making of chocolate, used to roast the cacao in earthern pots; and having afterwards cleared it of the husks, and bruised it between two stones, they made it into cakes with their hands. The Spaniards when the cacao is properly roasted and well cleaned, pound it in a mortar, to reduce it into a coarse mass, which they afterwards grind on a stone till it be of the utmost fineness: the paste being sufficiently ground, is put quite hot into tin moulds, in which it congeals in a very little time. The form of these moulds is arbitrary: the cylindrical ones, holding two or three pounds, are the most proper; because the bigger the cakes are, the longer they will keep. These cakes are very liable to take any good or bad scent, and therefore they must be carefully wrapt up in paper, and kept in a dry place. The Spaniards mix with the cacao nuts a great quantity of cloves and cinnamon and other drugs. The grocers in Paris use few or none of these ingredients; they choose the best nuts, which are called Caracca, from the place whence they are brought; and with these they mix a very small quantity of cinnamon, the freshest vanilla, and the finest sugar, but very seldom any cloves. In England, the chocolate is made of the simple cacao, excepting that sometimes sugar, and sometimes vanilla is added. The chocolate made in Portugal and Spain is not near so well prepared as the English, depending perhaps on the machine employed, viz. the double cylinder, which seems very well calculated for exact triture. If perfectly prepared, no oil appears on the solution. London chocolate gives up no oil like the foreign; and it also may, in some measure, depend on the thickness of the preparation. The solution requires more care than is commonly imagined. It is proper to break it down, and dissolve it thoroughly in cold water, by milling it with the chocolate stick. If heat is applied, it should be done slowly: for if suddenly, the heat will not only coagulate it, but separate the oil; and therefore much boiling after it is dissolved is hurtful. Chocolate is a common beverage with people of weak stomachs; but often rejected for want of proper preparation. When properly prepared, it is easily dissolved; and an excellent food where a liquid nutrient vegetable one is required. It is less flatulent than any of the farinacea.

Chocolate ready made, and cocoa paste, are prohibited to be imported from any part beyond the seas. If made and sold in Great Britain, it pays inland duty 1*s*. 6*d*. per pound avoirdupois: it must be enclosed in papers containing one pound each, and produced at the excise-office to be stamped. Upon three days notice given to the officer of excise, private families may make chocolate for their own use, provided no less than half a cwt. of nuts be made at one time.

Mr. Henly, an ingenious electrician, discovered that chocolate, fresh from the mill, as it cools in the tin-pans into which it is received, becomes strongly electrical; and that it retains this property for some time after it has been turned out of the pans, but soon loses it by handling. The power may be once or twice renewed by melting it again in an iron ladle, and pouring it into the tin pans as at first; but when it becomes dry and powdery, the powder is not capable of being revived by simple melting: but if a small quantity of olive oil be added, and well mixed with the chocolate in the ladle, its electricity will be completely restored by cooling it in the tin pan as before.

CHOCZIM, a town and fortress of Podolia, in European Russia, on the west bank of the Dniester; it is near the frontier of ancient Poland, and was formerly included in Moldavia. In 1739 a great battle was fought here between the Russians and Turks, and this town was surrendered to the former people. It successively passed from the one to the other for a series of years; but was finally ceded to the Russians by a late treaty, together with part of Moldavia. It lies 110 miles N. N. W. of Jassy, and in long. 26° 30′ E., lat. 48° 30′ N.

CHOICE, *n. s.* & *adj.*
CHO'ICELESS, *adj.*
CHO'ICELY, *adv.*
CHO'ICENESS, *n. s.*
} See *To* CHOOSE. Fr. *choir.* The act of choosing; determination between different things proposed; election. The power of choosing; election. The thing chosen; the thing taken, or approved, in preference to others. Care in choosing; curiosity of distinction. The best part of any thing, that is more properly the object of choice. Several things proposed at once, as objects of judgment and election. Select; of extraordinary value.

The *choice* and flower of all things profitable in other books, the Psalms do both more briefly contain, and more movingly also express. *Hooker.*

Choice there is not, unless the thing which we take be so in our power, that we might have refused it. If fire consume the stable, it chooseth not so to do, because the nature thereof is such that it can do no other. *Id.*

Thence passing forth, they shortly do arrive
Whereat the Bower of Bliss was situate;
A place picked out by *choice* of best alive,
That nature's work by art can imitate. *Spenser.*

Julius Cæsar did write a collection of apophthegms: it is pity his book is lost; for I imagine they were collected with judgment and *choice*.
Bacon's Apophthegms.

Your *choice* is not so rich in birth as beauty;
That you might well enjoy her. *Shakspeare.*

A band of men,
Collected *choicely* from each county some. *Id.*

A braver *choice* of dauntless spirits
Did never float upon the swelling tide. *Id.*

Take to thee, from among the cherubim,
Thy *choice* of flaming warriours.
Milton's Paradise Lost.

He that is *choice* of his time, will also be *choice* of his company, and *choice* of his actions.
Taylor's Holy Living.

Far different motives yet engaged them thus,
Necessity did them, but *choice* did us;
A *choice* which did the highest worth express,
And was attended by as high success. *Mord.*

As when the sun restores the glittering day,
The world late clothed in night's black livery,
Doth now a thousand colours fair display,
And paints itself in *choice* variety;
Which late one colour hid, the eye deceiving,
All so this prince those shapes obscure receiving,
With his suffused light makes ready to conceiving.
Fletcher's Purple Island.

Neither the weight of the matter of which the cylinder is made, nor the round voluble form of it, is any more imputable to that dead *choiceless* creature, than the first motion of it; and, therefore, it cannot be a fit resemblance to shew the reconcileableness of fate with choice. *Hammond.*

It is certain it is *choicely* good.
Walton's Angler.

Carry into the shade such auriculas, seedlings, or plants, as are for their *choiceness* reserved in pots.
Evelyn's Kalendar.

But like the birds, great Nature's happy commoners,
That haunt the woods in meads, and flowery gardens,
Rifle the sweets and taste the *choicest* fruits,
Yet scorn to ask the lordly owners' leave.
Rowe's Fair Penitent.

He is the happy man, whose life e'en now
Shows somewhat of that happier life to come,
Who, doomed to an obscure but tranquil state,
Is pleased with it; and were he free to *choose*,
Would make his fate his *choice*. *Cowper.*

Those that lie here stretched before us, the wise and the powerful of ancient times, warn us to remember the shortness of our present state; they were, perhaps, snatched away while they were busy, like us, in the *choice* of life. *Johnson's Rasselas.*

'Mid many things most new to ear and eye,
The pilgrim rested here his weary feet,
And gazed around on Moslem luxury;
Till quickly wearied with that spacious seat
Of wealth and wantonness, the *choice* retreat
Of sated grandeur from the city's noise. *Byron.*

CHOIR, *n. s.* Lat. *chorus.* An assembly or band of singers; the singers in divine worship; the part of the church where the choristers or singers are placed. Applied to songsters of every description, who unite their vocal melodies.

The *choir*,
With all the choicest musick of the kingdom,
Together sung Te Deum. *Shakspeare.*

The lords and ladies, having brought the queen
To a prepared place in the *choir*, fell off
At distance from her. *Id.*

They now assist the *choir*
Of angels, who their songs admire. *Waller*

Your voice, the sweetest of the *choir*,
Shall draw heaven nearer, raise us higher. *Marvell.*

Hush, ye pretty warbling *choir*,
Your thrilling strains
Awake my pains,
And kindle soft desire. *Gay.*

CHOIR, that part of the church where the choristers sing in divine service. It is separated from the chancel where the communion is celebrated, and from the nave of the church where

the people are placed; the patron is said to be obliged to repair the choir of the church. It was in the time of Constantine that the choir was separated from the nave. In the twelfth century, they began to enclose it with walls; but the ancient balustrades have been since restored, out of the view to the beauty of architecture. Choir, in nunneries, is a large hall adjoining to the body of the church, separated by a grate, where the nuns sing the office.

CHOISI (Francis Timoleon de), dean of the cathedral of Bayeux, and a member of the French Academy, was born at Paris in 1644. In 1685, he was sent with the chevalier de Chaumont to the king of Siam, and was ordained priest in the Indies by the apostolical vicar. He wrote a great number of works, in a polite, florid, and easy style; the principal of which are, 1. Four Dialogues on the Immortality of the Soul, &c. 2. Account of a Voyage to Siam. 3. An Ecclesiastical History, in two volumes, 4to. 4. Life of David, with an interpretation of the Psalms. 5. Life of Solomon, &c. He died at Paris in 1724.

CHOKE, *v. a.*
CHO'KER, *n. s.*
CHO'KY, *adj.*
} Sax. aceocan, from ceoca, the cheek or mouth. According to Minshew, from חב; whence, probably, the Spanish *ahogar*. To suffocate; to kill by stopping the breath; to shut up; to stifle; to obstruct; to block up a passage; to intercept the growth by pressing contiguity; to suppress; to extinguish from the same cause.

> But when to my good lord I prove untrue,
> I'll *choke* myself. *Shakspeare.*

> And yet we ventured; for the gain proposed
> *Choked* the respect of likely peril feared. *Id.*

> Confess thee freely of thy sin:
> For to deny each article with oath,
> Cannot remove nor *choke* the strong conception
> That I do groan withal *Id.*

> As a lamp is *choked* with a multitude of oyl, or a little fire, with overmuch wood, quite extinguished; so is the natural heat, with immoderate heating, strangled in the body. *Burton's Anat. Mel.*

> You must make the mould big enough to contain the whole fruit, when it is grown to the greatest; for else you will *choke* the spreading of the fruit. *Bacon's Natural History.*

> Men trooped up to the king's capacious court,
> Whose porticos were *choked* with the resort. *Chapman.*

> While you thundered, clouds of dust did *choke*
> Contending troops. *Waller.*

> No fruitful crop the sickly fields return;
> But oats and darnel *choke* the rising corn. *Dryden's Past.*

> Or plunged in miry pounds he gasping lies,
> Mud *choaks* his mouth, and plasters o'er his eyes. *Gay.*

> What means yon peasant's daily toil?
> From *choking* weeds to rid the soil. *Id.*

> While prayers and tears his destined progress stay,
> And crowds of mourners *choke* their sovereign's way. *Tickell.*

CHO'KE-PEAR, *n. s.* From choke and pear. A rough, harsh, unpalatable pear; any aspersion or sarcasm, by which another is put to silence; a low term.

> Pardon me for going so low as to talk of giving *choke-pears.* *Clarissa.*

CHO'KE-WEED, *n. s.* Ervangina. A plant.

CHO'LAGOGUES, *n. s.* Χυλος, bile. Medicines which have the power of purging bile or choler.

CHOLALLAN, one of the most considerable states near the mountain of Popocatepee, in Mexico. This, and the state Haexotzinco, having, with the assistance of the Tlascalans, shaken off the Mexican yoke, re-established their former aristocratical government.

CHOLEDOCHUS, from χολη, choler, and δεχομαι, to contain, in anatomy, a term applied to a canal, or duct, called also ductus communis; formed of the union of the porus bilarius and ductus cysticus. Passing obliquely to the lower end of the duodenum, it serves to convey the bile from the liver to the intestines. See ANATOMY.

CHOLESTERIC ACID, a French name for the acid formed by an union of nitric acid and the fat matter of the human biliary calculi. To obtain it, chemists cause the cholesterine to be heated with concentrated nitric acid of its own weight, by which it is speedily attacked and dissolved. There is disengaged at this time much oxide of azote; and the liquor on cooling, and especially on the addition of water, lets fall a yellow matter, which is the cholesteric acid impure, or impregnated with nitric acid. It is purified by repeated washings in boiling water. It is better after having washed it, however, to effect its fusion in the midst of hot water; to add to it a small quantity of carbonate of lead; to let the whole boil for some hours, decanting and renewing the water from time to time; then to put the remaining dried mass in contact with alcohol, and to evaporate the alcoholic solution. The residuum now obtained is the purest possible cholesteric acid. Its base is treated at considerable length in our article CHEMISTRY, which see.

CHO'LER, *n. s.*
CHO'LERICK, *adj.*
CHO'LERICKNESS, *n. s.*
} Lat. *cholera*, from χολη. The bile; the humor which, by its super-abundance, is supposed to produce irascibility; anger; rage; irascibility; peevishness.

> It engenders *choler*, planteth anger;
> And better 't were that both of us did fast,
> Since, of ourselves, ourselves are *cholerick*,
> Than feed it with such over-roasted flesh. *Shakspeare.*

> Another suitor I had was a very *cholerick* fellow; but I so handled him, that for all his fuming, I brought him upon his knees; if there had been an excellent bit in the market, any novelty, any fish, fruit or fowl, muskadel or malmesy, or a cup of neat wine, it was presently presented to me, though never so dear, hard to come by, yet I had it: the poor fellow was so fond of me at last, that I think if I would I might have had one of his eyes out of his head. *Burton's Anat. Mel.*

> The gall placed in the concave of the liver, extracts *choler* to it; spleen melancholy; which is situate on the left side, over against the liver, a spongy matter

that draws this black *choler* to it by a secret virtue and feeds upon it. *Id.*

Becanus threateneth all that read him, using his confident, or rather *cholerick*, speech. *Raleigh's History of the World.*

And all with sun and *choler* come adust,
And threaten Hyde to raise a greater dust. *Marvell.*

Our two great poets being so different in their tempers, the one *cholerick* and sanguine, the other phlegmatick and melancholick. *Dryden.*

He, methinks, is no great scholar,
Who can mistake desire for *choler*. *Prior.*

Bull, in the main, was an honest, plain-dealing fellow, *cholerick*, bold, and of a very unconstant temper *Arbuthnot.*

Choler. See Bile, Gall, and Medicine

CHOLERA Morbus, in medicine, a sudden eruption or overflowing of the bile or bilious matters, attended with spasms and gripings in the stomach. It sometimes occurs in warm climates, without any apparent cause, but more frequently from the use of indigestible food, which irritates the stomach. In England it seldom occurred until the year 1832, when the cholera asphyxia, or malignant cholera, ravaged not only the British islands, where it carried off about 12,000 souls, but also traversed the whole continent of Europe with even more fatal consequences.

Cholula, an ancient city and independent district of Mexico, in the present intendency of Puebla, which long resisted the Mexican power. Cortes calls it Chunultecol, and it contained, at the period of the Spanish conquest, 40,000 houses, independent of the suburbs, which were as large as the city itself. Cholula was at this time the supreme seat of the Mexican religion. Cortes mentions that he found 400 temples here, and one, more especially, erected on an artificial mountain, which attracted innumerable pilgrims from the distant provinces. Its ruins are yet seen. Humboldt says, that it has four stories all of equal height, and appears to have been constructed exactly in the direction of the four cardinal points; but is so covered with vegetation that it is difficult to ascertain this exactly. The perpendicular height of the edifice is 164 feet, and at the base it measures at each side 1450 feet. The platform on the top measures about 16,000 square feet. The whole is built of alternate layers of clay and bricks. It stands to the east of the city, on the road to Puebla. No remaining monuments of the ancient ecclesiastical edifices of Mexico exceed this in splendor. Cholula is situated in a fine plain, about eighty miles east of Mexico. It contains about 16,000 inhabitants.

CHOMELIA, in botany, a genus of plants, class tetrandria, order monogynia: cal. four-parted: cor. salver-shaped, four-parted; drupe inferior, with a two-celled nut; stigmas two, thickish. Species, one only; an American.

CHONDRILLA, in botany, a genus of the polygamia equalis order, and syngenesia class of plants; natural order forty-ninth, compositæ. receptacle naked: cal. calyculated; the pappus simple and stalked; the florets in a manifold series; seeds muricate. Species three, natives of Italy, Egypt, and Asia.

CHONDROPTERYGII, in ichthyology, a term formerly applied to the order of fishes, now called amphibia nantes, by Linnæus. See Amphibia.

CHOOSE, *v. a.* & *v. n.* }
Cho'oser, *n. s.* } Goth. kiosa; Teut. *kiesen*; Swed. [illegible]; Sax. ceosan; Fr. *choisir*. To take by way of preference of several things offered; to select; to pick out of a number. The neuter verb signifies to have the power of a choice between different things. It is often joined with a negative, implying an impossibility that the thing can be otherwise. It must of necessity; it is not of choice to be different. See instances below.

How much less shall I answer him, and choose out my words to reason with him? *Job.*

And there as ye of poverte me reprove,
The highe God, on whom that we beleve,
In wilful poverte *chose* to lede his lif;
And certes, every man, maiden, or wif,
May understond, that Jesus heven king
Ne wold not *chese* a vicious living. *Chaucer.*

Without the influence of the Deity supporting things, their utter annihilation could not choose but follow. *Hooker.*

Knaves abroad,
Who having by their own importunate suit
Convinced or supplied them, they cannot choose,
But they must blab. *Shakspeare.*

If he should offer to *choose*, and *choose* the right casket, you should refuse to perform your father's will, if you should refuse to accept him. *Id.*

When a favourite shall be raised upon the foundation of merit, than can he not *choose* but prosper. *Bacon.*

Come all into this nut, quoth she;
Come closely in, be ruled by me,
Each one may here a *chooser* be,
For room you need not wrestle. *Drayton.*

At her feet were laid
The sceptres of the earth, exposed on heaps
To *chuse* where she should reign. *Dryden's All for Love.*

Threw down a golden apple in her way;
For all her haste, she could not *choose* but stay. *Dryden.*

Those who are persuaded that they shall continue for ever, cannot *choose* but aspire after a happiness commensurate to their duration. *Tillotson.*

This generality is not sufficient to make a good *chooser*, without a more particular contraction of his judgment. *Wotton.*

I never wander where the bordering reeds
O'erlook the muddy stream; whose tangling weeds
Perplex the fisher; I ne'er *chuse* to bear
The thievish nightly net nor barbed spear. *Gay's Rural Sports.*

Perhaps I loved it well: and should I lay
My ashes in a soil which is not mine,
My spirit shall resume it—if we may
Unbodied *choose* a sanctuary. *Byron.*

CHOP, *v. a.* & *v. n.* }
Cho'pping, *part.* }
Cho'phouse, }
Cho'pping-block, *n. s.* }
Cho'pping-knife, *n. s.* }
Cho'ppy, *adj.* } Κοπτω; Swed. *kappa*; Bel. *kappen*; Dut. *kappe*; Fr. *couper*. To cut with a quick blow. It is applied to the quick motion of the jaws, in devouring voraciously; to eat rapidly, therefore, is to chop up. To mince; to cut into small pieces; to break into clefts and chasms. To do any thing with a

quick and unexpected motion, like that of a blow; as we say the wind chops about, that is, changes suddenly. A chop is a piece chopped off, whether of meat or anything else; but usually applied to mutton; a crack or cleft. A chophouse is a place of entertainment, which takes its name from furnishing the guests with steaks and chops only. Chop also signifies the jaw, from chaw. See JAW.

What shall we do, if we perceive
Lord Hastings will not yield to our complots?
——— *Chop* off his head, man. *Shakspeare.*

You seem to understand me,
By each at once her *choppy* finger laying
Upon her skinny lips. *Id.*

Here comes Dametas, with a sword by his side, a forest bill on his neck, and a *chopping-knife* under his girdle. *Sidney.*

Water will make wood to swell; as we see in the filling of the *chops* of bowls, by laying them in water. *Bacon.*

Sir William Capel compounded for fifteen hundred pounds; yet Empson would have cut another *chop* out of him, if the king had not died. *Id.*

If the body repercussing be near, and yet not so near as to make a concurrent echo, it *choppeth* with you upon the sudden. *Bacon's Natural History.*

Out of greediness to get both, he *chops* at the shadow, and loses the substance. *L'Estrange.*

By dividing of them into chapters and verses, they are so *chopped* and minced, and stand so broken and divided, that the common people take the verses usually for different aphorisms. *Locke.*

You are for making a hasty meal, and for *chopping* up your entertainment like an hungry clown. *Dryden.*

The straight smooth elms are good for axle-trees, boards, *chopping-blocks.* *Mortimer's Husbandry.*

Old cross condemns all persons to be fops,
That can't regale themselves with mutton-*chops.*
King's Cook.

While you and every courtly fop,
Fawn on the devil for a *chop,*
I've the humanity to hate
A butcher, though he brings me meat. *Gay.*

I lost my place at the *chop-house,* where every man eats in publick a mess of broth, or *chop* of meat, in silence. *Spectator.*

CHOP, *v. a.* Goth. *kiop;* Teut. *kaup;* Sax. ceap. See CHEAP. To purchase generally by way of truck; to give one thing for another. To put one thing in the place of another; to bandy; to altercate; to return one thing or word for another.

The *chopping* of bargains, when a man buys not to hold but to sell again, grindeth upon the seller and the buyer. *Bacon.*

Let not the council at the bar *chop* with the judge, nor wind himself into the handling of the cause anew, after the judge hath declared his sentence. *Id.*

You'll never leave off your *chopping* of logick, till your skin is turned over your ears for prating.
L'Estrange.

We go on *chopping* and changing our friends, as well as our horses. *Id.*

The beast had now no time to lose
Sets up communities and senses,
To *chop* and change intelligences. *Hudibras.*
In *chopping* logic with his foes. *Beattie.*

CHO'PPING, *adj.* Goth. *skapung;* Sax. scopgeong. A shapely child; large, healthy, stout.

Both Jack Freeman and Ned Wild
Would own the fair and *chopping* child. *Fenton.*

CHO'PIN, *n. s.* French. A French liquid measure, containing nearly a pint of Winchester. A term used in Scotland for a quart of wine measure.

CHOPIN (René), a celebrated civilian, born at Bailluel, in Anjou, in 1537. He was advocate in the parliament of Paris, where he pleaded for a long time with great reputation. He composed many works, which have been collected, and printed in six volumes folio. He died in Paris in 1606.

CHOPS, *n. s.* without a singular. Corrupted probably from chaps. The mouth of a beast. The mouth of a man, used in contempt. The mouth of anything, in familiar language.

He ne'er shook hands, nor bid farewel to him,
Till he unseamed him from the nape to th' *chops.*
Shakspeare.

CHOP'STICKS, *n. s.* Two slips of wood or ivory, used by the Chinese to eat with.

CHOPTANK, a large navigable river of the United States, which rises in Kent county, in the state of Delaware, and after running S. S.W. for about forty-three miles, through the eastern shore of Maryland, it turns suddenly W. N. W. and falls into the Chesapeak between Cook's Point and Tilghman's Island.

CHOPUNISH, or pierced-nosed Indians, a tribe of about 3000 native Indians of North America, who inhabit the banks of the Kooskooskee and Lewis rivers, to the west of the Rocky mountains. Captains Lewis and Clarke describe them as of amiable manners, and considerably advanced in civilisation. The men are generally well formed and robust; the women small and pretty: but both sexes very dark in their complexion. In their dress they delight in ornaments made of beads, sea-shells, and feathers. In winter they wear a shirt of buffalo or elk skins dressed, long painted leggins, and a plait of twisted brass round the neck. The dress of the women is, at this season, a long shirt of ibex skin, reaching down to the ancles, with a girdle. The men also wear a cap of fox or otter skin, with or without the fur, and the women a cap without a rim, formed of bear grass and cedar bark; the hair of both sexes flows in rows down the front of the body. Collars of bears' claws are not uncommon. An ornament much esteemed is a breast-plate, made of a strip of otter skin, six inches wide, cut out of the whole length of the back of the animal, and including the head; this being dressed with the hair on, a hole is made at the upper end, through which the head of the wearer is placed, and the skin hangs in front with the tail reaching below the knee, ornamented with pieces of pearl, red cloth, or wampum shells. One of the chiefs is said to have worn a tippit of human scalps, adorned with several thumbs and fingers. They show much respect for their dead, whom they place in wooden roofed sepulchres, rolling them first in skins, and separating them from each other by boards. They offer the horses and other animals in sacrifice to their deceased friends. These American travellers found them anxious for tomahawks, kettles, blankets, and awls: and by no means ignorant of the use of fire-arms and ammunition.

CHORAGUS, in the ancient theatres, an officer who superintended the chorus.

Choral, a person who, by virtue of the orders of the clergy, was in ancient times admitted to sit and serve in the choir.

CHORASAN, or Chorassan. See Khorassan, and Persia.

CHORAX, or Charax, a city of Characene, in Persia, called also Alexandria, from Alexander the Great; afterwards Antiochia, from Antiochus V. king of Syria; and lastly, Chorax Spasinæ or Pasinæ, i. e. the Mole of the Spasines; an Arabian king of that name having secured it against the overflowing of the Tigris, by a mole extending three miles, which serves as a fence to the whole country.

CHORAZIM, or Chorazin, a town of Galilee, the unbelief of whose inhabitants was lamented by our Saviour. It is two miles distant from Capernaum, and is now desolate.

CHORD, *n. s.* Lat. *chorda.* When it signifies a rope or string in general, it is written *cord:* when its primitive signification is preserved, the *h* is retained. The string of a musical instrument.

Who moved
Their stops and *chords*, was seen; his volant touch
Instinct through all proportions, low and high,
Fled and pursued transverse the resonant fugue.
Milton.

In geometry. A right line, which joins the two ends of any arch of a circle.

Chord, *v. a.* From the noun. To furnish with strings or chords; to string.

What passion cannot musick raise and quell?
When Jubal struck the *chorded* shell,
His listening brethren stood around.
Dryden.

Chord, in music, the union of two or more sounds uttered at the same time, and forming together an entire harmony. The natural harmony produced by the resonance of a sounding body, is composed of three different sounds, without reckoning their octaves; which form among themselves the most agreeable and perfect chord that can possibly be heard; for which reason they are called, on account of their excellence, perfect chords. Hence, in order to render that harmony complete, it is necessary that each chord should at least consist of three sounds. The trio is likewise found by musicians to include the perfection of harmony; whether because in this all the chords, and each in its full perfection, are used; or because upon such occasions as render it improper to use them all, and each in its integrity, arts have been successfully practised to deceive the ear, and give it contrary persuasion, by deluding it with the principal sounds of each chord, in such a manner as to render it forgetful of the other sounds necessary to their completion. Yet the octave of the principal sound produces new relations, and new consonances, by the completion of the intervals; they commonly add this octave, to have the assemblage of all the consonances in one and the same chord. See Consonance. And the addition of the dissonance (see Discord), producing a fourth sound superadded to the perfect chord, it becomes indispensably necessary, to render the chord full, that we should include a fourth part to express this dissonance. Thus, the series of chords can neither be complete nor connected, but by means of four parts. Chords are divided into perfect and imperfect or more properly, direct and reversed.

Chord, Direct, or Perfect, is that which is composed of the fundamental sound below, of its third, its fifth, and its octave: they are likewise subdivided into major and minor, according as the thirds which enter into their composition are flat or sharp. See Interval. Some authors likewise give the name of perfect to all chords, even to dissonances, whose fundamental sounds are below.

Chord, Imperfect, or Reversed, is that in which the sixth, instead of the fifth, prevails, and in general all those whose lowest are not their fundamental sounds.

Chords are also divided into consonances and dissonances. The chords denominated consonances, are the perfect chord, and its derivatives: every other chord is a dissonance. A table of both, according to the system of M. Rameau, may be seen in Rousseau's Musical Dictionary, vol. i. p. 27. After this table, he adds the following judicious and important observations. 1. 'It is a capital error to imagine, that the methods of inverting the same chord are in all cases equally eligible for the harmony and for the expression. There is not one of these different arrangements but has its proper character. Every one feels the contrast between the softness of the false fifth, and the grating sound of the tritone, though the one of these intervals is produced by a method of inverting the other. With the seventh diminished, and the second redundant, the case is the same with the interval of the second in general use, and the seventh. Who does not feel how much more vocal and sonorous the fifth appears when compared with the fourth? The chord of the great sixth, and that of the lesser sixth minor, are two forms of the same fundamental chord: but how much less is the one harmonious than the other. On the contrary, the chord of the lesser sixth major is much more pleasing and cheerful than that of the false fifth. And only to mention the most simple of all chords, reflect on the majesty of the perfect chord, the sweetness of that which is called the chord of the sixth, and the insipidity of that which is composed of a sixth and a fourth; all of them, however, composed of the same sounds. In general, the redundant intervals, the sharps in the higher part, are proper by their severity to express violent emotions of mind, such as anger and the rougher passions. On the contrary, flats in the higher parts, and diminished intervals, form a plaintive harmony which melts the heart. There are a multitude of similar observations, of which when a musician knows how to avail himself, he may command at will the affections of those who hear him. 2. The choice of simple intervals is scarcely of less importance than that of

the chords, with regard to the stations in which they ought to be placed. It is, for instance, in the lower parts that the fifth and octave should be used in preference; in the upper parts the third and sixth are more proper. If you transpose this order the harmony will be ruined, even though the same chords are preserved. 3. In a word, the chords are rendered still more harmonious, by being approximated and only divided by the smallest practicable intervals, which are more suitable to the capacity of the ear than such as are remote. This is what we call contracting the harmony, an art which few composers have skill and abilities enough to put in practice. The limits in the natural compass of voices, afford an additional reason for lessening the distance of the intervals, which compose the harmony of the chorus, as much as possible. We may affirm, that a chorus is improperly composed, when the distance between the chords increases; when those who perform the different parts are obliged to scream; when the voices raise above their natural extent, and are so remotely distant one from the other, that the perception of harmonical relations between them is lost. We say, likewise, that an instrument is in concord when the intervals between its fixed sounds are what they ought to be; we say, in this sense, that the chords of an instrument are true or false, that it preserves or does not preserve its chords. The same form of speaking is used for two voices which sing together, or for two sounds which are heard at the same time, whether in unison or in parts.'

Chords, or Cords, of musical instruments, are strings, by the vibration of which the sensation of sound is excited, and by the divisions of which the several degrees of tone are determined.

CHORDA, in anatomy, a small nerve extending over the drum of the ear.

CHORDEE, in medicine and surgery, a symptom attending a gonorrhœa, consisting in a violent pain under the frenum, and along the duct of the urethra, during the erection of the penis, which is incurvated downwards. These erections are frequent and involuntary.

CHOREA Sancti Viti. St. Vitus's dance, so called because some devotees of St. Vitus danced themselves into fits. It is a disease ranked by Cullen in the class neuroses, order spasmi. It consists of certain convulsive involuntary motions of the muscles, generally confined to one side. It seldom occurs after the age of puberty. See Medicine.

CHOREPISCOPUS, from χωρος, a region, and επισκοπος, a bishop. In the ancient church, an officer about whose function the learned are not agreed. The chorepiscopi were suffragan or local bishops, holding a middle rank between bishops and presbyters, and delegated to exercise episcopal jurisdiction within certain districts, when the boundaries of particular churches, over which separate bishops preside, were considerably enlarged. It is not certain when this office was first introduced; some trace it to the close of the first century; others tell us, that chorepiscopi were not known in the east till the beginning of the fourth century; and in the west about A. D. 439. They ceased in both in the tenth century. Also the name of a dignity still subsisting in some cathedrals, particularly in Germany; signifying the same with chori episcopus, bishop of the choir.

CHORIAMBUS, in ancient poetry, a foot compounded of a trochee and an iambus, and consisting of four syllables, whereof the first and last are long, and the two middle ones are short; such is the word nōbĭlĭtās.

CHO'RION, *n. s.* Χωρειν, to contain. The outward membrane that enwraps the fœtus.

CHOROBATA, or Chorobates, a kind of water level among the ancients, of the figure of the letter T, according to Vitruvius's description.

CHORO'GRAPHER, *n. s.* From χωρη, a region, and γραφω, to describe. He that describes particular regions or countries.

CHOROGRA'PHICAL, *adj.* See Chorographer. Descriptive of particular regions or countries.

> I have added a *chorographical* description of this terrestrial Paradise. *Raleigh's History of the World.*

CHOROGRA'PHICALLY, *adv.* From chorographical. In a chorographical manner; according to the rule of chorography.

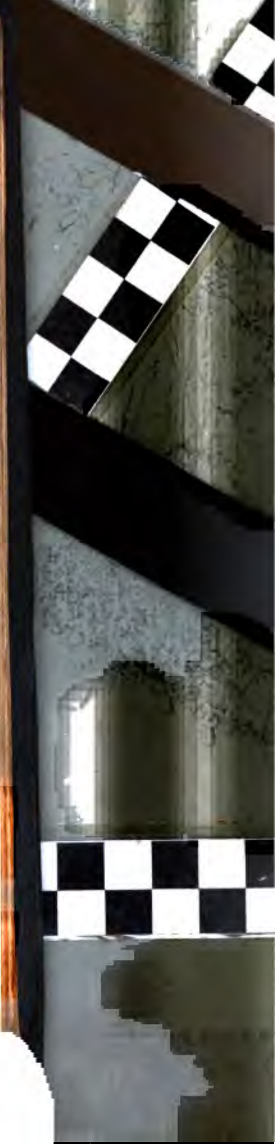
CHORO'GRAPHY, *n. s.* See Chorographer. The art or practice of describing particular regions, or laying down the limits and boundaries of particular provinces. It is less in its object than geography, and greater than topography.

CHOROIDES, or Choroeides, from χοριον, chorion, and ειδος, likeness. In anatomy, a term applied to several parts of the body, bearing some resemblance to the chorion: as, the inner membrane which invests the brain, more usually called pia mater: also the inner tunic of the eye. It is soft, thin, and black; and its inner or concave surface is very smooth and polished. See Anatomy.

CHOROMETRY, from χορη, and μετρεω, to measure. The art of surveying countries.

CHO'RUS, *n. s.* }
Cho'ral, *adj.* }
Cho'rister, *n. s.* } Lat. *chorus.* A concert, composed of a number of singers, either sacred, dramatic, or social. Chorister is an individual of this number, and choral that which appertains to chorus, concert, or choir; likewise singing in a choir.

> And let the roaring organs loudly play
> The praises of the Lord in lively notes;
> The whiles, with hollow throats,
> The *choristers* the joyous anthem sing. *Spenser.*
>
> For supply,
> Admit me *chorus* to this history. *Shakspeare.*
>
> Speak ye who best can tell, ye sons of light,
> Angels; for ye behold him, and with songs
> And *choral* symphonies, day without night,
> Circle his throne rejoicing; ye in heaven,
> On earth, join all ye creatures to extol
> Him first, Him last, Him midst, and without end.
> *Milton.*
>
> The new-born phœnix takes his way;
> Of airy *choristers* a numerous train
> Attend his progress. *Dryden.*
>
> The Grecian tragedy was at first nothing but a *chorus* of singers; afterwards one actor was introduced. *Id.*
>
> The musical voices and accents of the aerial *choristers.* *Ray on the Creation.*



In praise so just let every voice be joined,
And all the general *chorus* of mankind! *Pope.*

And *choral* seraphs sing the second day. *Amhurst.*

Join, ye loud spheres, the vocal choir;
Thou dazzling orb of liquid fire,
The mighty *chorus* aid.
Soon as grey evening gilds the plain,
Thou, moon, protract the melting strain,
And praise him in the shade. *Ogilvie.*

They formed a very nymph-like looking crew,
Which might have called Diana's *chorus* 'cousin,'
As far as outward show may correspond;
I won't be bail for any thing beyond. *Byron.*

CHORUS, in dramatic poetry, a song between the acts. Tragedy in its origin was no more than a single chorus, who trod the stage alone, and without any actors, singing dithyrambics or hymns in honor of Bacchus. Thespis, to relieve the chorus, added an actor, who rehearsed the adventures of some of their heroes; and Æschylus, finding a single person too dry an entertainment, added a second, at the same time reducing the singing of the chorus, to make more room for the recitation. But when tragedy began to be formed, the recitative, which at first was intended only as an accessory part to give the chorus a breathing time, became a principal part of the tragedy. At length, however, the chorus became incorporated into the action: sometimes it was to speak; and then their chief, whom they called coryphæus, spoke in behalf of the rest: the singing was performed by the whole company; so that when the coryphæus struck into a song, the chorus immediately joined him. The chorus sometimes also joined the actors in the course of the representation, with their plaints and lamentations on account of any unhappy accidents that befel them; but the proper function, and that for which it seemed chiefly retained, was to show the intervals of the acts; while the actors were behind the scenes, the chorus engaged the spectators; their songs usually turned on what was exhibited, and contained nothing but what was suited to the subject, and had a natural connexion with it; so that the chorus concurred with the actors for advancing the action. In the modern tragedies the chorus is laid aside, and the music supplies its place. M. Dacier observes, also, that there was a chorus in the ancient comedy: but this is suppressed in the new comedy, because it was used to reprove vices by attacking particular persons; as the chorus of the tragedy was laid aside to give the greater probability to those kinds of intrigue which require secresy.

CHOSE. The preter tense, and sometimes the participle passive, from to choose.

Yet never he his hart to her revealed,
But rather *chose* to dye for sorow great,
Then with dishonorable terms her to entreat. *Spenser.*

Our sovereign here above the rest might stand,
And here be *chose* again to rule the land. *Dryden.*

CHOSE, in common law, is used with divers epithets; as chose local, chose transitory, and chose in action. Chose in action is a thing incorporeal, and only a right, as an obligation for debt, annuity, &c. In general all causes of suit for any debt, duty, or wrong, are to be accounted choses in action, or in suspense; because they have no real existence, nor can properly be said to be in our possession. Chose transitory is a thing which is moveable, and may be taken away, or carried from place to place.

CHO'SEN. The participle passive, from to choose.

If king Lewis vouchsafe to furnish us
With some few bands of *chosen* soldiers,
I'll undertake to land them on our coast. *Shakspeare.*

He tells how Hubert thither bends his course
With furious Borgio, and a desparate train,
All *chosen* warriors of experienced force,
Drawn from the squadrons on the Brescian plain. *Guy.*

CHOSROES I. surnamed the Great, king of Persia, succeeded his father Cabades, A. D. 531. He at first made peace with the Romans; but broke it in the third year, and after a long war forced Justinian to make a disadvantageous peace. He was so puffed up with his victories, as to bid the emperor's ambassador follow him for audience to Cæsarea; on which Tiberius sent an army under Justinian, who made himself master of the country, and put Chosroes to death.

CHOTEESGOUR, a large country, in the province of Gundwana, Hindostan, between 22° and 23° N. lat., and 82° and 83° E. long. It is often called Ruttunpore, from its chief place. It contains about 20,000 square miles, in the compass of which there are thirty-four forts. It is generally unproductive, but on the southern part there is a fine champaign district, watered by numerous little rivers, and full of villages, ornamented with groves and tanks. Near Ryepoor, great quantities of wheat are grown, but rice is not plentiful, as large reservoirs of water and a suitable declivity in the land is necessary for its cultivation. Ruttunpoor, Ryepoor, and Nowagur are its principal towns; but its villages are numerous though poor. The country abounds in cattle, especially brood mares of the tattoo species. A few elephants, camels, and shawls, are brought for sale by foreign merchants, but the commerce is chiefly conducted by the brinjarries, or itinerant dealers in grain. It has been said, that in productive seasons they can employ 100,000 bullocks in exportation. Salt is imported from the Circars, and is extravagantly dear. The chief rivers of Choteesgour are the Hatsoo and the Caroon, both branches of the Mahanady. This district in the reign of Aurengzebe was annexed to Allahabad, though but nominally subject to the Mogul empire; in 1752 it was conquered by Ragojee Bhooslah, and has ever since been held by the Mahratta rajahs of Nagpoor.

CHOUGH, *n. s.* Sax. ceo; Fr. *choucus.* A bird which frequents the rocks by the sea-side, like a jackdaw, but bigger.

In birds, kites and kestrels have a resemblance with hawks, crows with ravens, daws and *choughs.* *Bacon's Natural History.*

To crows the like impartial grace affords,
And *choughs* and daws, and such republick birds. *Dryden.*

CHOUGH. See CORVUS.

CHOULE, *n. s.* Commonly pronounced and written jowl. The crop of a bird.

> The *choule* or crop adhering unto the lower side of the bill, and so descending by the throat, is a bag or sachel. *Browne's Vulgar Errours.*

CHOUS, in the eastern military orders, messengers of the divan of janissaries. There are several degrees of honor in this post. When a person is first advanced to it, he is called cuchak, or minor chous; after this he is advanced to be the alloy chous; that is, the messenger of ceremonies; and from this, having passed through the office of petelma, or procurator of the effects of the body, he is advanced to be the bas chous.

CHOUSE, *v. a.* & *n. s.* The original of this word is much doubted by Skinner, who tries to deduce it from the French, *gosser*, to laugh at; or *joucher*, to wheedle; and from the Teutonick, *kosen*, to prattle. It is perhaps a fortuitous and cant word, without etymology. The noun is derived by Henshaw from *kiaus*, or *chiaus*, a messenger of the Turkish court; who, says he, is little better than a fool. It signifies a bubble; a tool; a man fit to be cheated; a trick.

> When geese and pullen are seduced,
> And sows of sucking pigs are *choused*. *Hudibras*.
>
> A sottish *chouse*,
> Who, when a thief has robbed his house,
> Applies himself to cunning men. *Id.*
>
> Freedom and zeal have *choused* you o'er and o'er;
> Pray give us leave to bubble you once more. *Dryden.*

CHOWAN, a county of North Carolina, in Edenton district, bounded on the south by Albemarle Sound, on the north-east by Perquiman's, on the north by Gates, and on the west by Harford counties. Edenton is the chief town.

CHOWAN, a considerable river of North Carolina, formed by the confluence of the Black-water, Meherrin and Nottaway rivers, which rise in Virginia and unite in North Carolina; for fifteen miles upwards to Holliday's Island it is navigable for small vessels.

CHOWDER BEER, a cheap and easily prepared drink, highly commended for preventing the scurvy in long voyages, or for the cure of it where it may have been contracted. It is prepared as follows: take twelve gallons of water, in which put three pounds and a half of black spruce: boil it for three hours, and, having taken out the spruce, mix with the liquor seven pounds of molasses, and boil it up; strain it through a sieve, and when milk warm put to it about four spoonfuls of yeast to work it. In two or three days stop the bung of the cask; and in five or six days, when fine, bottle it for drinking.

To CHO'WTER, *v. n.* To grumble or mutter like a froward child

CHRABRATE, in lithology, a pellucid stone mentioned by writers of the middle age, supposed to be the common pebble crystal.

CHREMNITZ, the principal of the mine towns in Upper Hungary, ninety miles north-east of Presburg. Long. 19° 27′ E.; lat. 48° 59′ N.

CHRENECRUDA, a term occurring in writers of the middle age, and expressing a custom of those times; but its signification is doubtful. It is mentioned in Lege Salica, tit. 61, which says, he who kills a man, and hath not wherewithal to satisfy the law, or pay the fine, makes oath that he hath delivered up every thing that he was possessed of; the truth of which must be confirmed by the oaths of twelve other persons. Then he invites his next relations by the father's side to pay off the remainder of the fine, having first made over to them all his effects by the following ceremony. He goes into his house, and taking in his hand a small quantity of dust from each of the four corners, he returns to the door, and, with his face inwards, throws the dust with his left hand over his shoulders upon his nearest of kin. Which done, he strips to his shirt; and coming out with a pole in his hand, jumps over the hedge. His relations, whether one or several, are upon this obliged to pay off the composition for the murder. And if these (or any one of them) are not able to pay, iterum super illum chrenecruda, qui pauperior est, jactat, et ille totam legem componat. Whence it appears, that chrenecruda jactare is the same with throwing the dust gathered from the four corners of the house. Goldastus and Spelman translate it viridem herbam, green grass, from the German gruen kraut, or from the Dutch groen, green, and gruid, grass. Wendelinus thinks, that by this word is meant the proof of purification, from chrein, pure, and keuren, to prove; so that it must refer to the oaths of the twelve jurors. King Childebert reformed this law, because it savored of pagan ceremonies, and because several persons were thereby obliged to make over all their effects.

CHRISM, *n. s.* Χριζμα, an ointment. Unguent, or unction: it is only applied to sacred ceremonies.

> One act, never to be repeated, is not the thing that Christ's eternal priesthood, denoted especially by his unction or *chrism*, refers to.
> *Hammond's Practical Catechism.*

CHRISM, oil consecrated by the bishop, and used in the Romish and Greek churches, in the administration of baptism, confirmation, ordination, and extreme unction. It is prepared on Holy Thursday with much ceremony. In Spain it was anciently the custom for the bishop to take one-third of a sol for the chrism distributed to each church, on account of the balsam that entereth its composition. Du Cange observes, that there are two kinds of chrism; the one prepared of oil and balsam, used in baptism, confirmation and ordination; the other of oil alone, consecrated by the bishop, used anciently for the catechumens, and still in extreme unction. The Maronites before their reconciliation with Rome, besides oil and balsam, used musk, saffron, cinnamon, roses, white frankincense, and several other drugs mentioned by Rinaldus, in 1541 Dandini, the Jesuit, who went to mount Libanus in quality of the pope's nuncio, ordained, in a synod held there in 1596, that chrism should be made only of two ingredients, oil and balsam; the one representing the human nature of Jesus Christ, the other his divine nature.

CHRISM PENCE, CHRISMATIS DENARII, or CHRISMALES DENARII, a tribute anciently paid to the bishop by the parish clergy, for their chrism, consecrated at Easter for the ensuing year: afterwards condemned as simoniacal.

CHRISOM, *n. s.* See CHRISM. A child that dies within a month after its birth. So called from the chrisom-cloth.

When the convulsions were but few, the number of *chrisoms* and infants was greater.

Graunt's Bills of Mortality.

CHRISOM, CHRISMALE, or CHRISOM CLOTH, the face cloth, or piece of linen, laid over the child's head when baptised.

CHRIST, *n. s.*
CHRISTIAN, *n. s.*
CHRISTIA'NITY, *n. s.*
CHRI'STENDOM, *n. s.*
CHRI'STIANISM, *n. s.*
CHRI'STIANISE, *v. a.*
CHRI'STIANLY, *adv.*

Χριστὸς, the anointed; synonymous with Messiah. The Christian religion derives its name from the official appellation of its Divine Author. Christianity is the religion of Christ. A Christian is one who professes that religion. Christendom is the local extent of its profession. Christianly is to be like a Christian. To christianise is to convert or persuade to the Christian faith, and christianism comprehends the doctrines of Christianity and the nations that profess to have embraced.

In all that lond, no *Cristen* durste route;
All *Cristen* folk ben fled fro that contre,
Thurgh payenes, that conquereden all aboute
The plages of the North by lond and see;
To Wales fled the *Cristianitee*
Of olde Bretons, dwelling in this isle,
Ther was hir refuge for the mene while.
But yet ne'er *Cristen* Bretons so exiled,
That ther n'ere som which in her privitie
Honoured *Crist*; and Hethen folk begiled,
And neigh the castle swiche ther dwelten three.

Chaucer's Man of Lawes Tale.

Marcus Stoyrus the second, so pepil him highte,
That is to mene in our consient, a keeper of the night;
And so he did full trewe; for the record and the plees,
He wrote them ever trewly, and took none other fees
But such as was ordeyned to take by the yere,
Now, Lord God! in *Cristendom* I wold it were so clere.

Id. Merchant's Second Tale.

What hath been done, the parts of *Christendom* most afflicted can best testify.

Id.

An older and a better soldier, none
That *Christendom* gives out.

Shakspeare.

I'll not be made a soft and dull-eyed fool,
To shake the head, relent, and sigh, and yield
To *Christian* intercessors.

Id.

If the Roman church, good *Christians*, oblige ye
To believe man and beast to have spoken in effigie,
Why should we not credit the public discourses
In a dialogue between two inanimate horses.

Marvell.

The good old man, too eager to dispute,
Flew high, and, as his *Christian* fury rose,
Damned all for heretics who durst oppose.

Dryden.

The principles of platonick philosophy, as it is now *Christianised.*

Id.

Every one who lives in the habitual practice of any voluntary sin, cuts himself off from *christianity.*

Addison.

We *Christians* have certainly the best and the holiest, the wisest and most reasonable, religion in the world.

Tillotson.

The *Christian* religion, according to my creed, is a very simple thing, intelligible to the meanest capacity, and what, if we are at pains to join practice to knowledge, we may make ourselves thoroughly acquainted with, without turning over many books.

Beattie.

CHRISTIAN (Edward), chief justice of the Isle of Ely, and Downing professor of law in the University of Cambridge. He graduated at St. John's in 1779, having obtained the chancellor's prize medal that same year, for his classical attainments. He first iniquitously revived the modern claim of the Universities and other public libraries to eleven copies of *every* work published in the British dominions, and published an Examination of Precedents, &c. whereby it appears that an Impeachment is determined by a dissolution of Parliament, 8vo, 1790; A Dissertation Respecting the Rules of Evidence before the House of Lords, 8vo, 1792; a new edition of Blackstone's Commentaries, to which he added copious notes of his own, 8vo, 4 vols. 179[illegible]; Syllabus of Lectures, delivered at Cambridge, and printed in 1797, 8vo; an Account of the Origin of the two Houses of Parliament, with a Statement of the Privileges of the House of Commons, 8vo, 1810; a Treatise on the Bankrupt Laws, 1812, 2 vols. 8vo; another on the Game Laws, 8vo; and a Plan for a Country Provident Bank, 8vo, both in 1816. The peculiar [illegible] of his manner, and his frequent allusions to the decisions of the chief justice of the Isle of Ely as law, will not soon be forgotten by those who have heard him lecture, with respect to constitutional principles, he was more than a century behind the age in which he lived. He died at Downing College, March 29th, 1823.

CHRIST-CHURCH, a borough town of England, in Hampshire, situated on the east side of the Avon, about three miles from the sea, with a good salmon fishery, and a considerable trade in knit silk stockings and watch chains. It has a small haven which admits vessels of light burden at high water; and there is a weekly market on Monday. This borough sends one member to parliament. It is thirteen miles east of Poole, and 102 W.S.W. of London.

CHRI'STEN, *v. a.*
CHRI'STENING, *n. s.*

Sax. cristnian. To baptise; to initiate into Christianity by water. To name; to denominate. The ceremony of the first initiation into Christianity.

The queen was with great solemnity crowned at Westminster, about two years after the marriage, like an old *christening* that had staid long for godfathers.

Bacon.

Where such evils as these reign, *christen* the thing what you will, it can be no better than a mock millennium.

Burnet.

We shall insert the causes why the account of *christenings* hath been neglected more than that of burials.

Graunt.

The day of the *christening* being come, the house was filled with gossips.

Arbuthnot and Pope.

CHRISTENING. See BAPTISM.

CHRISTIAN, the name of seven kings of Denmark. See DENMARK, HISTORY OF.

Most CHRISTIAN KING, a title of the kings of France. The French antiquaries trace the origin of this title up to Pope Gregory the Great, who, writing a letter to Charles Martel, styled him Most Christian King, a title which his successors retained.

CHRISTIANS OF ST. JOHN, a sect of Christians very numerous in Balsora and the neighbouring towns; they formerly inhabited along the river Jordan, where St. John baptised, from whom they had their name. They hold an anniversary feast of five days; during which they all go to the bishop, who baptises them with the baptism of St. John. Their baptism is also performed in rivers; and that only on Sundays: they have no notion of the Trinity; or the Holy Ghost; nor have they any canonical book, but abundance of charms, &c. Their bishoprics descend by inheritance, though they have the ceremony of an election.

Christians of St. Thomas, a sort of Christians in a peninsula of India on this side of the gulf: they inhabit chiefly at Cranganor, and the neighbouring country: they admit of no images: but pay a great veneration to the cross: they affirm, that the souls of the saints do not see God till after the day of judgment: they acknowledge three sacraments, viz. baptism, orders, and the eucharist: they make no use of holy oils in the administration of baptism; but, after the ceremony, anoint the infant with an unction composed of oil and walnuts, without any benediction. In the eucharist, they consecrate with little cakes made of oil and salt, and instead of wine make use of water in which raisins have been infused.

CHRISTIANA, a town of Delaware, seated on a creek, in Newcastle county. It is the greatest carrying place between the waters of the Delaware and Chesapeake, which are here only thirteen miles asunder. It is four miles south-west of Newcastle, and seven south-west of Wilmington.

Christiana, or Christiania, the capital of Norway, and seat of the government, latitude nearly 60° N., longitude nearly 11° E.; 250 miles west of Stockholm. It lies in a fruitful valley, in the south of the province of Aggerhuus, at the bottom of the gulf of Biornia, which runs into the interior more than fifty miles, filled with rocky islands, beautifully and romantically disposed. It is the best built place in the kingdom, though it is but small, having only 1500 neat stone houses, and about 8000 inhabitants; it is in a very thriving condition. It is the seat of the governor of Aggerhuus, who holds a supreme court of justice, and of a bishop, the metropolitan of the country. It takes its name from its founder, Christian IV. of Denmark, who built it in 1624, after a fire which destroyed the old town of Opslow, formerly occupying part of the same site. The best part is the quartal, near the harbour, inhabited by the public officers and merchants. Some of the houses, especially in the suburbs, are constructed of wood, as is likewise the great military hospital, built in 1806, on an adjoining hill. It has a house of correction, an academy (made a university in 1812), a military school, and two theatres, the Norwegians being very fond of these entertainments. The harbour is excellent, in which a considerable trade is carried on, and on the 13th of January a great fair is held annually. Its manufactures are not of consequence, chiefly coarse cloth and cordage; it exports, principally to Britain, fish, tar, soap, vitriol, alum, iron, copper, and timber.

Christiana, a very extensive bailiwic of Norway, in the government of Aggerhuus, contains 66,300 inhabitants.

Christianity, as a system of religious truth, supposes, and indeed is altogether grounded on, the prior existence of the Jewish religion. Christians, whatever their particular tenets may be, acknowledge equally the Scriptures of the Old and New Testaments as the foundation of their faith and practice. Roman Catholics indeed, unite with this the tradition of their church as a basis of the doctrines and duties of Christianity; but they contend that such traditions are in no way contrary to the written word of God. These books, or at least particular passages in them, have, from the ambiguity of language, been variously interpreted by different commentators, and these diversities have given birth to a multiplicity of different sects. But it cannot be expected, that in giving an account of Christianity, we should comprehend all the opinions which have been exhibited by historical, systematical, or polemical authors. These, in such a work as this, can only be briefly noticed under their proper articles. The great question upon any general treatise on this subject must be, what is recognised and admitted as the common basis of their faith by the great majority of Christians? And the answer to this is clearly, the Old and New Testaments. If asked by what authority these books claim an absolute right, to determine the consciences and understandings of men, with regard to what they should believe and what they should do? Christians answer, that all Scripture, whether for doctrine, correction, or reproof, was given by immediate inspiration from God. If again interrogated how those books, which they call Scripture, are authenticated? They reply, that the Old and New Testaments are proved to be the Word of God, by evidences both external and internal. And such evidence involves the whole question o. Revelation. We, as Christians, believe that the advantages of all the revealed will of God, are derived to us from our 'holy profession.' The Old Testament must be true, or the New is false; hence we conceive that the evidences of Christianity are more properly to be exhibited under the word Revelation, and to that refer the reader.

CHRISTIANOPLE, a fortified port town of Sweden, on the Baltic Sea, in the territory of Blecking, and province of South Gothland, thirteen miles north-east of Carlscrona.

CHRISTIANSAND, a bishopric and government of Norway, bounded on the east by Christiana, on the north by Bergen, on the west by the German Ocean, and on the south by the Scagerrack, forms the entire south-west province of that kingdom, and contains 133,000 inhabitants. The annual importations of corn are considerable, the soil being very barren, and the fisheries and timber trade being the chief pursuits of the population.

Christiansand, the capital of the above bishopric, is a sea-port on the south coast, close to the sea, and was founded in 1641 by Christian IV. of Denmark. It is considered the fourth town in Norway in point of importance, but the cathedral is the only public building worth notice. It is in general well built, and the streets, though short, are broad and straight, large gardens surrounding many of the houses. It is the residence of the governor of the province and the bishop. The town is built on a sandy plain, quite close to the sea. The harbour is one of the best sheltered in Norway; vessels come up to the doors of the warehouses, and the inhabitants carry on a brisk timber trade and ship-building.

CHRISTIANSBORG, a Danish African fort and settlement on the Gold Coast. The Danes, it is said, have set the example of first abolishing the slave trade, and have made noble exertions to introduce cultivation. They had a plantation extending fifteen miles inland, which the Ashantees destroyed in the late war.

CHRISTIANSBURG, a town of Virginia, and the capital of Montgomery county, seated near the west side of a branch of Little River, which falls into the Kenhawa. It has a court-house and a jail, and a court is held in it monthly. It is 200 miles W.S.W. of Richmond, and 478 of Philadelphia: from which it lies in long. 5° 35′ W., lat. 37° 5′ N.

CHRISTIANS-OE, a group of Danish islands in the Baltic, known also by the name of Ert-Holm. But Christians-Oe is the name of the principal island, which is much frequented by vessels navigating the Baltic. Here is a light-house and castle, constructed by Christian V., the latter of which is sometimes used as a state prison. Long. 14° 47′ E., lat. 55° 13′ N.

CHRISTIANSTADT, a province of Sweden, containing the northern part of Scania, and is bounded by Halland and Kronoberg on the north, Blekingen on the north-east, the Baltic on the south-east and south, Malmohus on the south-west, and the Categat on the west. It contains 2370 square miles, and a population (in 1811) of 120,547. The capital, of the same name, is situated in a marshy plain, on the Helge-a, which flows into the Baltic, about ten miles below. Population 2260. Fifty-seven miles west by south of Carlscrona, and sixty-five north-east of Copenhagen.

CHRISTIANSTED, the chief town of the the island of Santa Cruz, on the north coast of the island. It has a fine harbour, defended by a fortress. Long. 63° 23′ W., lat. 17° 46′ N.

CHRISTIANSUND, a town in the government of Drontheim, on the east coast of Norway, situated partly on a a peninsula, but chiefly on three small rocky islands, which surround a spacious harbour. Its principal privileges were granted by Christian VI. of Denmark. There are scarcely any streets regularly formed, but the communication between one part of the town and another is kept up by water. Population 1650. Thirty-six miles north-west of Drontheim.

CHRISTINA (Alexandra), daughter of Gustavus Adolphus, king of Sweden, was born in 1626, and succeeded to the crown in 1633, when only seven years of age. This princess discovered even in her infancy, what she afterwards expressed in her memoirs, an invincible antipathy for the employments and conversation of women. She was fond of violent exercises, and such amusements as consist in feats of strength and activity. She had also both ability and taste for abstract speculations; and amused herself with language and the sciences, particularly that of legislature and government. She derived her knowledge of ancient history from its source; and Polybius and Thucydides were her favorite authors. As she was the sovereign of a powerful kingdom, many of the princes in Europe aspired to the honor of her alliance. Among her suitors were the prince of Denmark, the elector Palatine, the elector of Brandenburgh, the king of Spain, the king of the Romans, Don John of Austria, Sigismund of Rokocci, count and general of Cassovia, Stanislaus king of Poland, John Casimir his brother, and Charles Gustavus, duke of Deux-Ponts, son of the great Gustavus's sister, and consequently her first cousin. To this nobleman, as well as to all his rivals, she rufused her hand; but she caused him to be appointed her successor by the states. Political interests, differences of religion, and contrariety of manners, furnished Christina with pretences for rejecting all her suitors; but her true motives were the love of independence, and a strong aversion she had conceived, even in her infancy, for the marriage yoke. 'Do not force me to marry,' said she to the states, 'for if I should have a son, it is not more probable that he should be an Augustus than a Nero.' An accident happened in the beginning of her reign which gave her a remarkable opportunity of displaying the strength and equanimity of her mind. As she was at the chapel of the castle of Stockholm, with the principal lords of her court, a poor wretch, who was disordered in his mind, came to the place with a design to assassinate her. This man, who was in the full vigor of his age, chose, for the execution of his design, the moment in which the assembly was performing what in the Swedish church is called an act of recollection—a silent and separate act of devotion, perfoamed by each individual kneeling, and hiding the face with the hand. Taking this opportunity he rushed through the crowd and mounted a balustrade, within which the queen was upon her knees. The baron Braki, chief justice of Sweden, was alarmed, and the guards crossed their partisans to prevent his coming further; but he struck them furiously on one side, leaped over the barrier, and being then close to the queen made a blow at her with a knife, which he had concealed without a sheath in his sleeve. The queen avoided the blow, and pushed the captain of her guards, who instantly threw himself upon the assassin, and seized him by the hair. All this happened in a moment. The man was known to be mad, and therefore nobody supposed he had any accomplices: they therefore contented themselves with locking him up, and the queen returned to her devotion without the least trepidation. One of the great affairs which engaged Christina's attention while she was upon the throne was the peace of Westphalia: it was concluded in October, 1648. The success of the Swedish arms rendered Christina the arbitress of the treaty. No other public event of importance took place during the rest of Christina's reign; for there were neither wars abroad nor troubles at home. Her reign was that of learning and genius. She drew about her, wherever she was, all the distinguished characters of her time,—Grotius, Pascal, Bochart, Descartes, Gassendi, Saumaise, Naudé, Vossius, Heinsius, Menage, Lucas, Holstenius, Bayle, madam Dacier, Filicaia, and many others. The arts never fail to immortalise the prince who protects them: and almost all these illustrious persons have celebrated Christina, either in poems, letters, or other literary productions, which form a general mass of testimonials, that may be considered as a solid basis of reputation. Christina, however, may be justly censured with want of taste in not properly distinguishing merit. The rapid fortune which the adventurer Michon, known by the name Bourdelot, acquired by her countenance and liberality, was also a great scandal to literature. He had no pretensions to learning, and, though sprightly, was yet indecent. He was brought to court by the learned Saumaise; and, for a time, drove literary merit out of it, making learning the object of his ridicule, and exacting from Christina an exorbitant tribute to the weakness and inconstancy of her sex. At last she was compelled by the public indignation to banish this unworthy minion and she immediately forgot him. This Bourdelot, during his ascendancy over the queen, had supplanted count Magnus de la Gardie, son of the constable of Sweden, who was a relation, a favorite, and perhaps the lover of Christina. M. de Motteville, who had seen him ambassador in France, says, in her memoirs, that he spoke of his queen in terms so passionate and respectful, that every one concluded his attachment to her to be more ardent and tender than a mere sense of duty can produce. This nobleman fell into disgrace because he showed some inclination to govern; while M. Bourdelot seemed to aim at nothing more than to amuse, and concealed, under the unsuspected character of a droll, the real ascendancy which he exercised over the queen's mind. About this time an accident happened to Christina which again displayed her presence of mind. Having ordered some ships of war to be built at the port of Stockholm, she went to see them when finished; and as she was going on board, across a narrow plank, with admiral Fleeming, his foot slipping, he fell, and drew the queen with him into the sea, which in that place was nearly ninety feet deep. Anthony Steinberg, the queen's first equerry, instantly threw himself into the water, laid hold of her robe, and, with such assistance as was given him, got the queen ashore; during the time of this accident her recollection was such that the moment her lips were above water she cried, 'Take care of the admiral.' When she was got out of the water she discovered no emotion, either by her gesture or countenance; and she dined the same day in public, where she gave a humorous account of her adventure. Though she was at first fond of the power and splendor of royalty, yet she began at length to feel that it embarrassed her; and the same love of independence which had determined her against marriage, at length made her weary of her crown. At last she resolved to abdicate; and, in 1652, communicated her resolution to the senate. The senate zealously remonstrated against it, and were joined by the people, and even by Charles Gustavus himself, who was to succeed her: she yielded to their importunities, and continued to sacrifice her own pleasure to the will of the public till 1654, when she carried her design into execution. The ceremony of her abdication was a mournful solemnity, a mixture of pomp and sadness, in which scarcely any eyes but her own were dry. She continued firm and composed through the whole; and as soon as it was over prepared to remove into a country more favorable to science than Sweden was. Concerning the merit of this action the world has always been divided in opinion; it has been condemned alike both by the ignorant and the learned, the trifler and the sage. It was admired, however, by the great Condé: 'How great was the magnanimity of this princess,' said he, 'who could so easily give up that for which the rest of mankind are continually destroying each other, and which so many throughout their whole lives pursue without attaining!' Christina, besides abdicating her crown, abjured her religion; an act universally approved by one party and censured by another; the Papists triumphed and the Protestants were offended. No prince, after a long imprisonment, ever showed so much joy upon being restored to his kingdom as Christina did in quitting hers. When she came to a little brook, which separates Sweden from Norway, then under the dominion of Denmark, she got out of her carrriage, and leaping to the other side, cried out in a transport of joy, 'At last I am free, and out of Sweden, whither, I hope, I shall never return.' She dismissed her women, and laid aside the habit of her sex. 'I would become a man,' said she, 'yet I do not love men because they are men, but because they are not women.' She made her abjuration at Brussels, where she saw the great Condé, who, after his defection, made that city his asylum. 'Cousin,' said she, 'who would have thought, ten years ago, that we should have met at this distance from our countries?' The inconstancy of Christina's temper appeared in her continually travelling from place to place: from Brussels she went to Rome, from Rome to France, and from France she returned to Rome again; after this she went to Sweden, where she was not very well received; from Sweden she went to Hamburgh, where she continued a year, and then went again to Rome; from Rome she returned to Hamburgh, and again to Sweden, where she was still worse received than before; upon which she went back to Hamburgh, and from Hamburgh again to Rome. She intended another journey to Sweden, but it did not take place; she also planned an expedition to England, where Cromwell did not seem well disposed to receive her; and after many wanderings, and many purposes of wandering still more, she at last died at Rome, in 1689. Her journeys to Sweden, however, had motives of necessity, for her appointments were very ill paid, though the states often confirmed them after her abdication: but to other places she was led merely by a roving disposition, and there was no event in Europe in which she was not ambitious of acting a principal part. During the troubles in France, by the faction called the Fronde, she wrote with great eagerness to all the interested parties, officiously offering her mediation to reconcile their interests and calm their passions, the secret springs of which it was altogether impossible she should know. This was first thought a dangerous, and afterwards a ridiculous behaviour. During her residence in France she gave universal disgust, not only by violating all the customs of the country, but by practising others directly opposite. She treated the ladies of the court with the greatest rudeness: when they came to embrace her, she, being in man's habit, cried out, 'What a strange eagerness have these women to kiss me! Is it because I look like a man?' The murder of Monaldeschi is, to this hour, an inscrutable mystery. It is, however, of a piece with the expressions constantly used by Christina in her letters, with respect to those with whom she was offended; for she scarcely ever signified her displeasure without threatening the life of the offender. 'If you fail in your duty,' said she to her secretary, whom she sent to Stockholm after her abdication, 'not all the power of the king of Sweden shall save your life, though you should take shelter in his arms.' Bayle was also threatened for having said that the letter which Christina wrote, upon the revocation of the edict of Nantes, was 'a remain of Protestanism;' but he made his peace by apologies and submission. She had wit, taste, parts, and learning: she was indefatigable upon the throne; great in private life; firm in misfortunes; impatient of contradiction, and, except in her love of learning, inconstant in her inclinations. The most remarkable instance of this fickleness is, that after she had abdicated the crown of Sweden she intrigued for that of Poland. She was, in every action and pursuit, violent and ardent in the highest degree; impetuous in her desires, dreadful in her resentment, and fickle in her conduct. She says of herself that 'she was mistrustful, ambitious, passionate, haughty, impatient, contemptuous, satyrical, incredulous, undevout, of an ardent and violent temper, and extremely amourous;' a disposition, however, to which, if she may be believed, her pride and her virtue were always superior. In general her failings were those of her own, and her virtues those of the other sex.

CHRI'STMAS, *n. s.* From Christ and mass. The day on which the nativity of our blessed Saviour is celebrated, by the particular service of the church.

> For their part they are true to the church, their infants are questioned and sprinkled; their wives pay a shilling and are churched; they are funny at a wedding, and feel no expense but the ring; they eat cross-buns on Good Friday; they are merry at Easter, and mad at *Christmas*; they pay small tythes through life, and are buried in form when they die; and they call this the Christian religion in the best constituted church in the world, and abuse all that think otherwise, as knaves and fools, ignorant of God, and disloyal to the king.
>
> *Robinson.*

CHRISTMAS. As to the antiquity of this festival, the first footsteps we find of it are in the second century, about the time of the emperor Commodus. The decretal epistles indeed carry it up a little higher; and say that Telephorus, who lived in the reign of Antoninus Pius, ordered divine service to be celebrated, and an angelical hymn to be sung, the night before the nativity of our Saviour. That it was kept before the time of Constantine we have a melancholy proof: for whilst the persecution raged under Dioclesian, who then kept his court at Nicomedia, that tyrant, among other acts of cruelty, finding multitudes of Christians assembled together to celebrate Christ's nativity, commanded the church doors where they were met to be shut, and fire to be put to it, which soon reduced them and the church to ashes.

CHRI'STMAS-BOX, *n. s.* From Christmas and box. A box in which little presents are collected at Christmas.

> When time comes round, a *Christmas-box* they bear,
> And one day makes them rich for all the year.
>
> *Gay's Trivia.*

CHRI'STMAS-FLOWER, *n. s.* Hellebore.

CHRISTMAS HARBOUR is described by captain Cook as a good and safe harbour, on the north coast of Kerguelen's Island, abounding with seals and water-fowl; but remarkably destitute of vegetation. He found here a bottle, containing a parchment memorial of the place having been visited by a French vessel in 1772-3.

CHRISTMAS ISLAND, an island nearly in the centre of the Pacific Ocean, and so named by captain Cook, on account of his first landing here on Christmas-day, 1777. It is forty-five miles in circumference; bounded by a reef of coral rocks, on the west side of which is a bank of fine sand, extending a mile into the sea, and affording good anchorage. The soil, in some places, is light and black, composed of decayed vegetables, the dung of birds, and sand: in others, nothing but broken corals and shells are to be seen. No fresh water was found by digging. The vegetable productions are only a few cocoa-nut trees, and some low trees, shrubs, and plants, such as are found on other islands of the same appearance, in a soil half formed. It is frequented by several sorts of birds, and plenty of fish and turtles are found on its coast. Long. 157° 30′ W., lat. 1° 59′ N.

CHRISTMAS ROSE. See HELLEBORUS.

CHRISTMAS SOUND, a bay on the south coast of Terra del Fuego, thus named by captain Cook, in December, 1774. Here is anchorage in from fifteen to thirty fathoms; and tufts of wood, fresh water, and wild fowl, near. A copious description of it, that great navigator says, is unnecessary, as no one would be benefited by it.

CHRISTOPHERSON (John), a learned English bishop of the sixteenth century, born in Lancashire, educated at Cambridge, and one of the first fellows of Trinity College. In 1554 he was made dean of Norwich, but in the reign of Edward VI. he lived abroad in a state of exile. On the accession of Mary I. he returned, and was made bishop of Chichester. He died a short time before that bloody monarch. He translated Philo Judæus into Latin, and the ecclesiastical histories of Eusebius, Socrates, Sozomen, Evagrius, and Theodoret; but his translations are censured as not only barbarous in style, but as defective, erroneous, and deranged. He is accused of acting the commentator rather than the translator; of enlarging, retrenching, and transposing at pleasure, and altering not only the sense, but even the chapters of his authors. Hence Baronius and others, who have trusted to his translations, have been led into great mistakes.

Christ, Order of. 1. A military order, founded by Dionysius I. king of Portugal, to animate his nobles against the Moors. The arms of this order are gules, patriarchal cross, charged with another cross argent: they had their residence, first, at Castromarin, afterwards at Thomar; which was near to the Moors of Andalusia and Estremadura. 2. Another military order in Livonia, instituted in 1205, by Albert, bishop of Riga, to defend the new Christians, who were daily converted in Livonia, but persecuted by the heathens. They wore on their cloaks a sword with a cross over it, whence they were also denominated brothers of the sword.

CHRISTOPHE, a ci-devant emperor and negro of remarkable character, was born in the island of St. Kitt's, but conveyed, in 1780, to St. Domingo as a slave, being then about twelve years old. Skilful in the art of cookery, he was much employed in a tavern at Cape Town, and took an active part among the first revolutionists. Being entrusted, by general Leclerc, with the command of a division of the French troops, he went over to the black army; and, on the death of Dessalines, he rose to the supreme command, and shortly after assumed the title of Henry I. emperor of Hayti. He maintained a strong military force, and built the town of Sans Souci, with a splendid palace, defended by forts and redoubts; but at length fell by a conspiracy, the 8th of October, 1820; when, finding that his troops were not to be relied on, he shot himself through the heart. His character was that of a ferocious despot, but he learned how to play this part in the school of his former masters.

CHRISTOPHER'S, (St.) called by English sailors generally St. Kitt's, is eight miles south-east of Eustatia, and contains 43,726 acres, or almost seventy square miles. The interior is chiefly composed of barren precipices and mountains. The loftiest of them, Mount Misery, rises 3,711 feet above the level of the sea, and is evidently an exhausted volcano. The soil near the sea is extremely fertile, and exceeded by no part of the West Indies in the production of sugar. Particular spots have been known to yield five hhds. of sixteen cwt. each, to the acre, and a whole plantation has yielded four hhds. The island has been estimated to contain 43,726 acres; 17,000 are devoted to sugar, 4000 to pasturage, and perhaps 2000 or 3000 to cotton, indigo, and provisions; the rest is unfit for cultivation. The official value of the exports and imports amounted,

	Imports.	Exports.
In 1809, to .	£266,064 .	£132,845
1810, . .	253,611 .	89,362

The principal imports were,

	Coffee. *cwt.*	Sugar. *cwt.*	Rum. *galls.*	Cotton. *lbs.*
1809,	433	166,053	343,075	112,327
1810,	136	167,943	220,886	26,853

By an estimate, in 1805, the whites and people of color amounted to 1998. More recently the population has been taken at 31,700, of whom about 30,000 are slaves. Basseterre, the capital, is on the south-west coast, at the mouth of a river, opening into a bay called Basseterre Road. It contains 800 houses, and has three batteries.

CHRISTOVAL, (St.) a strong sea-port town of Brasil, in the province of Bahia. Its population is not considerable, but sugar is grown in the neighbourhood in great abundance. Twenty miles north-east of Sergippe. Long. 37° 30′ W., lat. 12° 40′ S. There are various other minor settlements of this name in different parts of South America.

Christoval, (St.) one of five lakes at the bottom of a valley of Mexico, in the vicinity of the city of that name. A small town of this name also stands on its shores, with sixty families of Indians, besides Spaniards. Eighteen miles north of Mexico. Long. 99° 5′ W., lat. 19° 34′ N.

CHRIST'S Thorn, *n. s.* So called, as Skinner fancies, because the thorns have some likeness to a cross. A plant. It has long sharp spines: the flower has five leaves, in form of a rose: out of the flower-cup, which is divided into several segments, rises the pointal, which becomes a fruit, shaped like a bonnet, having a shell almost globular, which is divided into three cells, in each of which is contained a roundish seed. This is by many persons supposed to be the plant from which our Saviour's crown of thorns was composed.

CHROASTACES, in natural history, a genus of pellucid gems, comprehending all those of variable colors, as viewed in different lights; of which kinds are the opal and the asteria or oculus felis. See Opal and Asteria.

CHROMA, in rhetoric, elegance of expression.

CHROMATIC, *adj.* Χρωμα, color. Relating to color.

> I am now come to the third part of painting, which is called the *chromatick*, or colouring.
>
> *Dryden's Dufresnoy*

Relating to a certain species of ancient music, now unknown.

> It was observed, he never touched his lyre in such a truly *chromatick* and enharmonick manner.
>
> *Arbuthnot and Pope.*

Chromatic, a kind of music, which proceeds by several semi-tones in succession. For this denomination several causes are assigned, of which the following appears to be the most satisfactory. Χρωμα may signify that shade of a color by which it melts into another, or what the French call nuance. It this sense it will apply to semi-tones, which, being the smallest intervals allowed in the diatonic scale, will most easily run one into another. To find the reasons assigned by the ancients for this denomination, and the various divisions of the chromatic species, the reader may have recourse to the same article in Rousseau's Musical Dictionary. At present, that species consists in giving such a procedure to the fundamental bass, that the parts in the harmony, or at least some of them, may proceed by semi-tones, as well in rising as descen ing; which is most frequently found in the minor mode, from the alteration to which the sixth and seventh note are subjected, by the nature of the mode itself. The successive semi-tones used in the chromatic species are rarely of the same kind; but alternatively major and minor, that is to say, chromatic and diatonic: for the interval of a minor tone contains a minor or chromatic semi-tone, and another which is major or diatonic; a measure which temperament renders common to all tones; so that we cannot proceed by two minor semi-tones which are conjunctive in succession, without entering into the enharmonic species; but two major semi-tones twice follow each other in the chromatic order of the scale. The most certain precedures of the fundamental bass to generate the chromatic elements in ascent, is alternately to descend by thirds and rise by fourths, whilst all the chords carry the third major. If the fundamental bass proceeds from dominant to dominant by perfect cadences avoided, it produces the chromatic in descending. To produce both at once, interweave the perfect and broken cadences, but at the same time avoid them. As at every note in the chromatic species one must change the tone, that succession ought to be regulated and limited to prevent deviation. For this purpose the space most suitable to chromatic movements is between the extremes of the dominant and the tonic in ascending, and between the tonic and the dominant in descending. In the major mode one may also chromatically descend from the dominant upon the second note. This transition is very common in Italy; and, notwithstanding its beauty, begins to be a little too common amongst us. The chromatic species is admirably fitted to express grief and affliction: these sounds boldly struck in ascending, tear the soul. Their power is no less magical in descending; it is then that the ear seems to be pierced with real groans. Attended with its proper harmony, this species appears proper to express everything; but its completion, by concealing the melody, sacrifices a part of its expression; and for this disadvantage, arising from the fulness of the harmony, it can only be compensated by the nature and genius of the movement.

Chromatic, Enharmonic. See Enharmonic.

Chromatics. See Optics.

CHROMIC Acid, in chemistry. This acid was discovered by Vauquelin, and was extracted from the lead ore of Siberia by means of carbonate of potash, which was afterwards separated by a more powerful acid. In this state it is a red or orange-colored powder, of a peculiar rough metallic taste, which is more sensible in it than in any other metallic acid. If this powder be exposed to the action of light and heat, it loses its acidity, and is converted into green oxide of chrome, giving out pure oxygen gas. The chromic acid is the first that has been found to deoxygenate itself easily by the action of heat, and afford oxygen gas by this simple operation. It appears that several of its properties are owing to the weak adhesion of a part, at least, of its oxygen. The green oxide of chrome cannot be brought back to the state of an acid, unless its oxygen be restored by treating it with some other

The extraction of chromic acid from the French ore is performed by igniting it with its own weight of nitre in a crucible. The residue is lixiviated with water, which being then filtered contains the chromate of potash. On pouring into this a little nitric acid, and muriate of barytes, an instantaneous precipitate of the chromate of barytes takes place. After having procured a certain quantity of this salt, it must be put in its moist state into a capsule, and dissolved in the smallest possible quantity of nitric acid. The barytes is to be then precipitated by very dilute sulphuric acid, taking care not to add an excess of it. When the liquid is found by trial to contain neither sulphuric acid nor barytes, it must be filtered. It now consists of water, with nitric and chromic acids. The whole is to be evaporated to dryness, conducting the heat at the end so as not to endanger the decomposition of the chromic acid, which will remain in the capsule under the form of a reddish matter. It must be kept in a glass phial well corked.

The chromic acid is soluble in water, and crystallises, by cooling and evaporation, in longish prisms of a ruby red. Its taste is acrid and styptic. Its specific gravity is not exactly known; but it exceeds that of water. It powerfully reddens the tincture of turnsole.

It readily unites with alkalis, and is the only acid that has the property of coloring its salts, whence the name of chromic has been given it. If it be strongly heated with charcoal, it grows black, and passes to the metallic state without melting.

Of the acids, the action of the muriatic on it is the most remarkable. If this be distilled with the chromic acid, by a gentle heat, it is readily converted into chlorine. It likewise imparts to it by mixture the property of dissolving gold; in which the chromic resembles the nitric acid.

CHROMIUM, χρωμα, color, in chemistry and metallurgy, a metal discovered by the celebrated Vauquelin in 1797, and so called from its power of coloring all its combinations. It may be extracted either from the native chromates of lead or iron. The brown chromate of iron, which is usually employed, is best acted upon by nitrate of potash. As this metal belongs more to the laboratory of the chemist than to any branch of arts or manufactures, we have treated on it at length under the article Chemistry, to which we therefore refer the reader.

CHRO'NICAL, *adj.* }
Chro'nick. } From χρονος, time.

A chronical distemper is of length; as dropsies, asthmas, and the like. *Quincy.*

Of diseases some are *chronical*, and of long duration; as quartane agues, scurvy, wherein we defer the cure unto more advantageous seasons.
Browne's Vulgar Errours.

The lady's use of these excellencies is to divert the old man when he is out of the pangs of a *chronical* distemper. *Spectator.*

CHRO'NICLE, *n. s.* }
Chro'nicler, *n. s.* } Fr. *chronique*, from χρονος, time. A register or account of events in order of time. A history. To register; to record. A historian; one that keeps up the memory of things past.

This to rehearse, should rather be to *chronicle* times than to search into reformation of abuses in that realm.
Spenser.

I do herein rely upon these bards, or Irish *chroniclers.* *Id.*

You lean too confidently on those Irish *chronicles,* which are most fabulous and forged. *Id. on Ireland.*

This custom was held by the Druids and bards of our ancient Britons, and of latter times by the Irish *chroniclers,* called rimers.
Raleigh's History of the World.

If from the field I should return once more,
I and my sword will earn my *chronicle.*
Shakspeare. Antony and Cleopatra.

To suckle fools, and *chronicle* small beer.
Id. Othello.

I am traduced by tongues, which neither know
My faculties nor person, yet will be
The *chronicles* of my doing. *Shakspeare.*

Here gathering *chroniclers,* and by them stand
Giddy fantastick poets of each land. *Donne.*

The bloody Scottish *chronicle* read o'er,
Shewed him how many kings in purple gore
Were hurled to hell by cruel tyrants lore.
Marvell.

Apostolizing from our arts, and us
To turn the *chronicler* to Sparticus. *Id.*

I give up to historians the generals and heroes which croud their annals, together with those which you are to produce for the British *chronicle.* *Dryden.*

I shall be the jest of the town; nay, in two days, I expect to be *chronicled* in ditty, and sung in woeful ballad. *Congreve.*

CHRONICLES, BOOKS OF, canonical writings of the Old Testament. It is uncertain whether the Books of Kings or Chronicles were written first, as each refer to the other. The latter, however, are often more full and comprehensive than the former. Whence the Greek interpreters call these two books Παραλειπομενα, Supplements, Additions, because they contain some circumstances which are omitted in the other historical books. The Jews make but one book of the Chronicles; under the title of Dibre-Haiamim, i. e. Journals, or Annals. Ezra is generally believed to be the author of these books. It is certain they were written after the end of the Babylonish captivity and the first year of the reign of Cyrus, of whom mention is made in the last chapter of the second book. They are an abridgment of all the sacred history, from the beginning of the Jewish nation to their first return from the captivity taken out of those books of the Bible which we still have, and out of other annals which the author had then by him. The design of the writer was to give the Jews a series of their history. The first book relates to the rise and propagation of the people of Israel from Adam, and gives a punctual and exact account of the reign of David. The second book sets down the progress and end of the kingdom of Judah, to the very year of their return from the Babylonish captivity.

CHRO'NOGRAM, *n. s.* Χρονος time, and γραφω to write. An inscription including the date of any action. Of this kind the following is an example:

Gloria lausque *Deo,* sæ*CLorVM* in sæc*V*la sunto.

A *chronogrammatical* verse, which includes not only this year, 1660, but numerical letters enough to reach above a thousand years further, until the year 2867.
Howel.

CHRONOGRAMMA'TICAL, *adj.* From chronogram. Belonging to a chronogram. See the last example.

CHRONOGRA'MMATIST, *n. s.* From chronogram. A writer of chronograms.

There are foreign universities, where, as you praise a man in England for being an excellent philosopher, or poet, it is an ordinary character to be a great *chronogrammatist.* *Addison.*

CHRONOLOGY

CHRONO'LOGY, *n. s.*
CHRONO'LOGER, *n. s.*
CHRONOLO'GICAL, *adj.*
CHRONOLO'GICALLY, *adv.*
CHRONO'LOGIST, *n. s.*

Χρονος time, and λογος doctrine.—The science of computing and adjusting the periods of time; as the revolution of the sun and moon: and of computing time past, and referring each event to the proper year. The derivations bear so evident a relation to every part of this definition, that to explain them is unnecessary.

Thus much touching the *chronological* account of some times and things past, without confining myself to the exactness of years.
Hale's Origin of Mankind.

According to these *chronologists,* the prophecy of the Rabbin, that the world should last but six thousand years, has been long disproved.
Browne's Vulgar Errours.

And when the measure of the year not being so perfectly known to the ancients, rendered it very difficult for them to transmit a true *chronology* to succeeding ages. *Holder on Time.*

Chronologers differ among themselves about most great epochas. *Id.*

All that learned noise and dust of the *chronologist* is wholly to be avoided. *Locke on Education.*

CHRONOLOGY, as the science which discourses upon time, for our assistance in the knowledge of history, might be expected to be of easy attainment, and to be rather a topic of useful, occasional reference, 'as men set their watches by a regulator,' than a separate study of much importance. The truth, however, is far otherwise. Upon no science ought the student to enter with a greater anticipation of difficulties: proportionably to its importance, we know of none so much neglected; none in which the best authorities differ more among themselves. 'The answer of a great man,' quoted by Locke, 'to one who asked him what time was? Si non rogas intelligo,' which amounts to this, 'the more I set myself to think of it, the less I understand it,' might, therefore, with great propriety, be transferred to a similar question respecting chronology. The reason of this, perhaps, on reflection, is not very difficult to divine. Until history assumed a definite and regular form, this assistant study was not needed; and until astronomical observations were made with some kind of accuracy, and properly recorded, it could not be pursued. In the most ancient and difficult periods of history, therefore, we find the greatest want of modern accuracy, and some of our most important discoveries in the arts and sciences, as a foundation of this science. Nor is it enough to say they did not exist; the observations that were made must be investigated; the best possible scientific data explored and harmonised, and the records of all ancient nations examined and compared. Without leading points and dates, history is undistinguishable from fables; and thus have we evinced, as we apprehend, the absolute and peculiar necessity for a systematic study of this important sister-science.

It is generally divided into two parts; the first of which is technical, and treats of the proper measurement of time, and its divisions; the second historical, fixing the dates of the events recorded in history, and ranging them in the order in which they happened.

The ancient heathen poets, as we should expect, appear to have been entirely unacquainted with it; neither Homer nor Hesiod mention anything like a formal calendar in any part of their writings. The only measurement of time in those early periods was by the seasons, the revolutions of the sun and moon; and many ages seem to have elapsed before the mode of computation by dating events came into general use. Several centuries intervened between the era of the olympic games and the first historians; and several more between these and the first authors of chronology.

When time first began to be reckoned, we find its measures very indeterminate. The succession of Juno's priestesses at Argos served Hellanicus for the regulation of his narrative; while Ephorus reckoned his matters by generations. Even in the histories of Herodotus and Thucydides, we find no regular dates for the events recorded.

No effort appears to have been made to establish a fixed era until the time of Ptolemy Philadelphus, who attempted it by comparing and correcting the dates of the olympiads, the kings of Sparta, and the succession of the priestesses of Juno at Argos. Eratosthenes and Apollodorus digested the events recorded by them, according to the succession of the olympiads and of the Spartan kings. The uncertainty of the measures of time in the most early periods, renders the histories of those times equally uncertain; and, even after the invention of dates and eras, we find the ancient historians very inattentive to them, and inaccurate in their computations. Frequently their eras and years were reckoned differently, without their being sensible of it, or at least without giving the reader any information concerning it; a circumstance which has rendered the fragments of their works, now remaining, of very little use to posterity.

The Chaldean and Egyptian writers are generally acknowledged to be fabulous; and Strabo acquaints us, that Diodorus Siculus, and the other early historians of Greece, were ill informed and credulous. Hence the disagreement among the ancient historians, and the extreme confusion and contradiction we meet with on comparing their works. Hellanicus and Acusilaus disagreed about their genealogies; the latter rejected the traditions of Hesiod. Timæus accused Ephorus of falsehood, and the rest of the world accused Timæus. The most fabulous legends were imposed on the world by Herodotus; and even Thucydides and Diodorus, generally accounted able historians, have been convicted of error. The chronology of the Latins is still more uncertain. The records of the Romans were destroyed by the Gauls; and Fabius Pictor, the most ancient of their historians, was obliged to borrow the greatest part of his information from the Greeks. In other European nations the chronology is still more imperfect, and of a later date; and even in modern times, a considerable degree of confusion and inaccuracy has arisen from want of attention in the historians, to ascertain the dates and epochs with precision.

It is obvious, therefore, how necessary a proper system of chronology must be for the right understanding of history, and likewise how very difficult it is to establish such a system. To this important point, however, several learned men have directed their attention, particularly Julius Africanus, Eusebius of Cæsarea, George Syncellus, John of Antioch, Denis Petau, Cluvier, Calvisius, Usher, Simson, Marsham, Sir Isaac Newton, Bishops Beveridge and Clayton, Jackson, Blair, Playfair, and Dr. Hales.

The last of these able writers has indeed but too well corroborated our introductory remarks as to the difficulties of this science, and the general uncertainty of many of its principal topics of enquiry. In every system of chronology, as he observes, the two grand eras of the Creation of the world, and the Nativity of Christ, must be the puncta stantia, the fixed points, or standards, by reference to which all subordinate epochs, eras and periods, are to be adjusted, such as those of the deluge, the exodiad of the Jews from Egypt, the reign of Sesostris, the destruction of Troy, the overthrow of Nineveh, the foundation of Solomon's temple, foundation of Rome, era of the olympiads, the eclipse of Thales, &c. And, to show the singular state of discordance in which the testimonies of different chronologers will be found, he subjoins in his New Analysis of Chronology, vol. i. p. 3.; a list of 120 different opinions of the epoch of the creation, as compared with the nativity, varying in their extremes no less than 3268 years. Dr. Hales himself fixes that event B. C. 5411, differing from the Usherian, or commonly received chronology, 1497 years. We insert this curious table at the close of our article: even the epochs of the nativity, as compared with the era of the foundation of Rome, vary according to the following celebrated systems no less than ten years.

EPOCHS OF THE NATIVITY.

	U. C.	B. C.
Tillemont, Mann, Priestley . . .	747	7
Kepler, Capellus, Dodwell, Pagi .	748	6
Chrysostom, Petavius, Prideaux, Playfair, Hales	749	5
Sulpitius Severus, Usher	750	4
Irenæus, Tertullian, Clemens Alex. Eusebius,, Syncellus, Baronius, Calvisius, Vossius	751	3

	U. C.	B. C.
Epiphanius, Jerome, Orosius, Bede, Salian, Sigonius, Scaliger	752	7
Chronicon Alexand. Dionysius, Luther, Labbæus	753	1
		A. D.
Aerwart	754	1
Paul of Middleburgh	755	2
Lydiat	756	3

Chronology may be said to be founded: 1. On astronomical observations, particularly of the eclipses of the sun and moon, combined with the calculations of the eras and years of different nations. 2. The testimonies of credible authors. 3. Those epochs in history, which are so well attested and determined, that they have never been controverted. 4. Ancient medals, coins, monuments, and inscriptions. None of these, however, can be sufficiently intelligible without an explanation of the first part, which considers the divisions of time, and of which therefore we shall treat in the first place.

PART I.

OF THE DIVISIONS OF TIME, OR TECHNICAL CHRONOLOGY.

SECT. I.—OF THE COMPUTATIONS AND DIVISIONS OF THE DAY.

The most obvious division of time is derived from the apparent revolutions of the celestial bodies, particularly of the sun, which, by the vicissitudes of day and night, become evident to the most barbarous and ignorant nations. In strict propriety of speech the word day signifies only that portion of time during which the sun diffuses light on any part of the earth; but, in the most comprehensive sense, it includes the night also, and is called by chronologers a civil day; by astronomers a natural, and sometimes an artificial day.

By a *civil day* is meant the interval between the sun's departure from any given point in the heavens and his return to it; with as much more as answers to his diurnal motion eastward, which is at the rate of fifty-nine minutes and eight seconds of a degree, or three minutes and fifty-seven seconds of time. It is also called a solar day, and is longer than a sidereal one, insomuch that, if the former be divided into twenty-four equal parts or hours, the latter will consist only of twenty-three hours, fifty-six minutes. The apparent inequality of the sun's motion likewise, arising from the obliquity of the ecliptic, produces another inequality in the length of the days: and hence the difference betwixt real and apparent time, so that the apparent motion of the sun cannot always be a true measure of duration. Those inequalities, however, are capable of being reduced to a general standard, which furnishes an exact measure throughout the year; whence has arisen the difference between mean and apparent times. See ASTRONOMY, Index.

The commencement and conclusion of the day have been very differently reckoned by different nations. The beginning of the day was counted from sunrise by the Babylonians, Syrians, Persians, and Indians. The civil day of the Jews was begun from sunrise, and their sacred one from sunset; the latter mode of computation being followed by the Athenians, Arabs, ancient Gauls, and other European nations; the Rev. Mr. Campbell found some native tribes of the southern regions of Africa adopting the same mode. According to some, the Egyptians began their day at sunset, while others are of opinion that they computed from noon or from sunrise; Pliny informs us that they computed their civil day from one midnight to another. It is probable, however, that they had different modes of computation in different provinces or cities. The Ausonians, the most ancient inhabitants of Italy, computed the day from midnight; a mode adopted in the second century by Hipparchus: afterwards by Copernicus, and other astronomers, and now in common use among ourselves. The Astronomical day, however, as it is called, on account of its being used in astronomical calculations, commences at noon, and ends at the same time the following day. The Mahommedans reckon from one twilight to another.

Dr. Hales observes, that the ערב-בקר evening-morning, of the Jews (used by Daniel to denote a civil day in his celebrated prophecy, chap. viii. 14,) was probably adopted by the Greeks. Hence Hesiod represents the occultation of the Pleiades as lasting νυκτας τε και ἠματα τεσσαρακοντα, forty nights and days, i. e. calendar days; and Dr. H. regards the Greek compound νυχημερον, as denoting the same mode of reckoning. We appear also to have retained this mode from our Celtic ancestors, in the English seven-night, or se'nnight, and fortnight; and the French in their anuit (old French), 'to-day.' 'Chronologers,' he adds, have generally supposed that the civil day began at sunset, according to primitive usage. But this is a mistake: it did not begin till night-fall: till the end of day-light, and commencement of twilight, at the first appearance of the stars after sunset; which begins as soon as the sun has arrived at a depression of twelve degrees below the horizon; when stars of the first magnitude begin to shine. But this does not take place till near an hour after sunset, in the temperate zones. Nor is it full night till the sun is depressed about eighteen degrees; when the smallest stars become visible; and star-light shines out in all its lustre, as soon as the milky way makes its appearance, at about twenty degrees of depression. The evening twilight, therefore, or nightfall, is the natural limit between day and night; as the morning twilight, or dawn, or day-break, is, on the other hand, the natural limit between night and day.

'On this astronomical distinction was founded the Jewish law. 'From evening unto evening ye shall hallow your sabbath.' Levit. xxiii, 32. That is from evening twilight until evening twilight again, For the most skilful commentators assure us, that 'the sabbath among the Jews was always reckoned to begin from the first appearance of the stars on Friday evening, and to end at their appearance again on the day we call Saturday.'—*West on the Resurrection*, p. 85. And this satisfactorily explains a difficult passage expressing the time when our Lord's interment was finished. Και ἡμερα ην παρασκευη, και σαββατον επεφωσκε, Luke, xxiii. 54. 'And it was preparation-day (Friday), and the sabbath was going to dawn,' i.e. at the dawn of night, or evening twilight. Our public translation, 'and the sabbath drew on,' gives the meaning correctly, but not a literal translation of the phrase.'

We add another valuable remark of the same kind from this learned author:—

'The Jews reckoned two evenings; the former began at the ninth hour of the natural day, or the third, afternoon; the latter at the eleventh hour. Thus the paschal lamb was required to be sacrificed, בין הערבים, 'between the evenings.' Exod. xii. 6; Levit. xxiii. 4; which is admirably explained by Josephus, Πασχα,—καθ' ἡν θυουσι μεν απο ἐννατης ὡρας μεχρι ἑνδεκατης. The passover,—on which day they sacrificed from the ninth hour until the eleventh.—Bell. Jud. 6, 9, 3. p. 1291. Hence the law requiring the paschal lamb to be sacrificed, 'at even, at the going of the sun,' Deut. xvi. 6, expressed both evenings. It is truly remarkable, that 'Christ our passover,' expired at the ninth hour, and was taken down from the cross at the eleventh, or sun-set. Matt. xxvii. 46, 57.

There was a prophetic use of the word day among the Jews, which does not strictly, perhaps, belong to chronological science, but which may furnish data finally important to the understanding of the prophecies, Ezek. iv. v. vi. God here expressly expounds the day to signify a year; and commentators have thus generally interpreted the prophetic periods, Deut. viii. 14: xii. 11, 12; and Rev. xi. 3. We lately thought also the suggestion of a learned Jew worth considering, whether the threatening, Gen. xi, 17. 'In the day that thou eatest thereof, thou shalt surely die,' might not intend the unique period of a thousand years, within which the life of Adam, and all the longest-lived of the human race terminated?

A singular method of computation takes place in Italy. The civil day commences at some indeterminate point after sunset; whence the time of noon varies with the season of the year. At the summer solstice, the clock strikes sixteen at noon, and nineteen at the time of the winter solstice. Thus the length of each day differs by several minutes from that immediately preceding or following it. This variation occasions a considerable difficulty in adjusting their time by clocks. It is accomplished, however, by a sudden movement which corrects the difference when it amounts to a quarter of an hour; and this it does sometimes at the end of eight days, sometimes at the end of fifteen, and sometimes at the end of forty. Information of this is given by a kalendar, which announces, that from the 16th of February, for instance, to the 24th, it will be noon at a quarter past eighteen; from the 24th of February to the 6th of March, it will be noon at eighteen o'clock precisely; from the 1st of June to the 13th of July, the hour of noon will be at sixteen o'clock; on the 13th of July it will be at half an hour after sixteen; and so on throughout the different months of the year. This absurd method of measuring the day has long continued, throughout the whole of Italy, a few provinces only excepted, notwithstanding several attempts to suppress it.

The subdivisions of the day have not been less various than the computations of the day itself. The most obvious division, and which could at no time, nor in no age, be mistaken, was that of morning and evening. In process of time the two intermediate points of noon and midnight were determined; and this division into quarters was in use long before the invention of hours.

The first subdivision of these quarters probably was that of the Jews and Romans, who divided the day and night into four vigils or watches. The first began at sun-rising, or six in the morning; the second at nine; the third at twelve; and the fourth at three in the afternoon. In like manner the night was divided into four parts; the first beginning at six in the evening, the second at nine, the third at twelve, and the fourth at three in the morning. The first of these divisions was called by the Jews the third hour of the day; the second the sixth; the third the ninth; and the fourth the twelfth,and sometimesthe eleventh. The learned author, already quoted, however seems to prove that three divisions of the day, answering to the morning, noon, and evening of the pious psalmist, Ps. liv. 17, and three watches of the night, was the primitive division. He quotes the scriptural phrases, the first or beginning of watches, Lam. xi. 19; the middle watch, Judges vii. 19; and the morning watch, Exod. xiv. 24. The last, we may observe is the first place of scripture in which a subdivision of this kind is mentioned, and was as probably an Egyptian as a Jewish division of time. Calmet renders it the watch of day-break, which he says, as the Jews departed from Egypt in the vernal equinox, would answer to our four o'clock in the morning. See also 1 Sam. xi. 11. Precisely with this triple division of the night agreesthe remark of Homer

Αςρα δε δη προβεβηκε, παρωχηκεν δε πλεων νυξ,
Των δυο μοιραων, τριτατη δ'ετι μοιρα λελειπται.

'The stars are now far advanced; more than two parts of the night are passed; a third part only is left.' The introduction of the fourth watch has been ascribed to the stricter military discipline of later times: it was clearly adopted both in the Roman and Jewish mode of dividing the night in the time of Christ, who accurately describes the four watches as οψε, the late watch; μεσονυκτιω, midnight; αλεκτοροφωνιας, the cock-crowing, and πρωι, the early or morning watch. Mark xiii. 35. The Jews say that they have derived the hours of prayer, i.e. at morning, noon, and evening, from the patriarchs; the first from Abraham, the second from Isaac, and the third from Jacob. Vid. Ludor. Capell. in Acti iii. 1. Hence the Papists have borrowed their canonical hours.

Some learned authorities inform us, that the primary mode of dividing the day was by the measurement of the human shadow. Thus, when their shadow was of a certain length, they breakfasted; when of a certain length, they dined; and when of a certain length they supped; and that hence arose the use of the dial, &c. See Brown's Antiquities of the Jews, v. xi. 387. Another division in use, among these nations, as well as the Greeks, was that which reckoned the first quarter from sunset to midnight; the second from midnight to sunrise; the third, or morning watch, from morning to noon; and the fourth from noon to sunset.

The more minute subdivision of the day into *hours* is a comparatively modern invention; but at what time it first commenced is uncertain. It does not appear from the writings of Moses that he was acquainted with it, as he mentions only the morning, mid-day, evening and sunset. Hence we may conclude, that the Egyptians at that time knew nothing of it, as Moses was well skilled in their learning. According to Herodotus, the Greeks received the knowledge of the twelve hours of the day from the Babylonians. It is probable, however, that the division was actually known and in use before the name hour was applied to it; as Censorinus informs us that the term was not made use of in Rome for 300 years after its foundation; nor was it known at the time the XII. tables were constructed. In confirmation of the testimony of Herodotus, we have the first mention of hours in the Bible by the prophet Daniel, c. iii. 6, while a captive in Babylon. See also Dan. iv. 19, 33, &c.

The eastern nations divide the day and night in a very singular manner; the origin of which is not easily discovered. The Chinese have five watches in the night, which are announced by a certain number of strokes on a bell or drum. By the ancient Tartars, Indians, and Persians, the day was divided into eight parts, each of which contained seven hours and a half. On the coast of Malabar the day is divided into six parts, called najikas; each of these six parts is subdivided into sixty others, called venaigas; the venaiga into sixty birpes; the birpe into ten kenikans; the kenikan into four mattires; the mattire into eight kaunimas or caignodes; which divisions, according to our mode of computation, stand as follows:—

Najika, 24 hours. Venaiga, 24 min. Birpe, 4 sec.
Kenikan, $\frac{2}{5}$ sec. Mattire, $\frac{1}{10}$ sec. Caignode, $\frac{1}{80}$ sec.

The Chinese day begins at midnight, and ends with the midnight following. It is divided into twelve hours, each distinguished by a particular name and figure. They also divide the natural day into 100 parts, and each of these into 100 minutes; so that the whole contains 10,000 minutes. In the northern parts of Europe, where only two seasons are reckoned in the year, the divisions of the day and night are considerably larger than with us. In Iceland the twenty-four hours are divided into eight parts; the first of which commences at three in the morning; the second at five; the third at half an hour after eight; the fourth at eleven; the fifth at three in the afternoon; the sixth at six in the evening; the seventh at eight; and last at midnight. In the eastern part of Turkestan the day is divided into twelve equal parts, each of which is distinguished by the name of some animal. These are subdivided into eight keh; so that the whole twenty-four hours contain ninety-six keh.

The modern divisions of the hour in use among us are into minutes, seconds, thirds, fourths, &c. each being a sixtieth part of the former subdivision. By the Chaldæans, Jews, and Arabians, the hour is divided into 1080 scruples: so that one hour contains sixty minutes, and one minute, twenty-eight scruples. The ancient Persians and Arabs were likewise acquainted with this division; but the Jews are so fond of it, that they pretend to have received it in a supernatural manner. 'Issachar,' say they, 'ascended into heaven, and brought from thence 1080 parts for the benefit of the nation.'

The division of the day being ascertained, it soon became an object to indicate in a public manner the expiration of any particular hour or division; as without some general knowledge of this kind, it would be in a great measure impossible to carry on business. The methods of announcing this have been likewise very different.

Among the Egyptians it was customary for the priests to proclaim the hours like watchmen among us. The same method was followed at Rome; nor was there any other method of knowing the hours until A. A. C. 293, when Papirius Cursor first set up a sun-dial in the capitol. A similar method is practised among the Turks, whose priests proclaim from the top of their mosques, the cock-crowing, day-break, mid-day, three o'clock in the afternoon, and twilight, being their appointed times of worship. As this mode of proclaiming the hour could not but be very inconvenient, as well as imperfect, the introduction of an instrument which every one could have in his possession, and which might answer the same purpose, must have been considered as a valuable acquisition. One of the first of these was the clepsydra or water clock. See CLEPSYDRA. Various kinds of clepsydræ were in use among the Egyptians at a very early period. The invention of the instrument is attributed to Thoth or Mercury, and it was afterwards improved by Ctesibius of Alexandria. It was a common measure of time among the Greeks, Indians and Chaldæans, as well as the Egyptians, but was not introduced into Rome till the time of Scipio Nasica. The Chinese astronomers have long made use of it; and by its means have divided the zodiac into twelve parts; but it is a very inaccurate measure of time, varying, not only according to the quantity of water in the vessel, but according to the state of the atmosphere. The clepsydra was succeeded by the gnomon or sun-dial. This, at first, was no more than a stile erected perpendicularly to the horizon; and it was a long time before the principles of it came to be thoroughly understood. The invention is with great probability attributed to the Babylonians, from whom the Jews received it before the time of Ahaz, when we know that a sun-dial was already erected at Jerusalem.

The Chinese and Egyptians were also acquainted with the use of the dial at a very early period, and it was considerably improved by Anaximander or Anaximenes; one of whom is for that reason looked upon to be the inventor. Various kinds of dials, however, were invented and used in different nations long before their introduction at Rome. Papirius Cursor erected the first; and, thirty years after, Valerius Messala brought one from Sicily, which was used in

Rome for no less than ninety-nine years, though constructed for a Sicilian latitude, and consequently incapable of showing the hours exactly in any other place; but at last another was constructed by L. Philippus, capable of measuring time with greater accuracy.

It was long after the invention of dials before mankind began to form any idea of clocks; nor is it well known at what period they were first invented. A clock was sent by Pope Paul I. to Pepin king of France, which at that time was supposed to be the only one in the world. A very curious one was also sent to Charles the Great from the caliph Haroun Alraschid, which the historians of the time speak of with surprise and admiration: but the greatest improvement was that of Mr. Huygens, who added the pendulum to it. Still, however, the instruments for dividing time were found to be inaccurate for nice purposes. The expansion of the materials by heat, and their contraction by cold, would cause a very perceptible alteration in the going of an instrument in the same place at different times of the year, and much more if carried from one climate to another. Various methods have been contrived to correct this; which indeed can be done very effectually at land by a certain construction of the pendulum; but at sea, where a pendulum cannot be used, the inaccuracy is of consequence much greater: nor was it thought possible to correct the errors arising from these causes in any tolerable degree, until the invention of Harrison's time-piece. This has since been greatly improved, and time is now very accurately measured at sea See CLOCK-MAKING, and WATCHES.

SECT. II.—OF WEEKS.

We now proceed to the larger divisions of time, which more properly belong to chronology, and which must be kept on record, as no instrument can be made to point them out. Of these the division into weeks of seven days is one of the most ancient, and probably took place from the creation of the world. Some, indeed, are of opinion that the week was invented some time after for the more convenient notation of time; but whatever may be in this, we are certain that it is of the highest antiquity; being adopted in the Mosaic narrative of the creation, and that even the most rude and barbarous nations have used it. The ancient Greeks, however, were ignorant of this division; and M. Goguet informs us that they were almost the only nation who were so. By them the month of thirty days was divided into three times ten, and the days of it named accordingly: thus the fifteenth day of the month was called the second fifth, or fifth of the second tenth; the twenty-fourth was called the third fourth, or the fourth day of the third tenth. This method was in use in the days of Hesiod, and it was not until several ages had elapsed that the use of weeks was received into Greece from the Egyptians.

The week was likewise unknown to the ancient Persians and to the Mexicans; the former having a different name for every day of the month, and the latter making use of a cycle of thirteen days.

But almost all other nations adopted the week of seven days; and it is remarkable that one day in the week has always been accounted sacred by most nations. Thus Saturday was consecrated to pious purposes among the Jews, Friday by the Turks, Tuesday by the Africans of Guinea, and Sunday by the Christians. Hence also the origin of Feriæ or holidays, frequently made use of in Systems of Chronology.

Chronologers have remarked that the week seems a natural measure of time furnished by the four principal phases or quarters of the moon. Dr. Hales, however, insists that it was derived from a divine institution, at the creation, and handed down by primitive tradition. It seems also that Noah adopted it, Gen. viii. 10—12, and that it was known to the patriarchs, Gen. xxix. 7. But our author rests the proof of it principally on the singular fact that the word *sabbat* or *sabbata* denoted a week among the Syrians, Arabians, Ethiopians, and Persians, from a very remote period; and quotes the following ancient Syriac calendar of the week (expressed in the Chaldee alphabet) from Michaelis's Introduction to the New Testament, by Dr. Marsh.

חד-שבתא	One of the Sabbath	Sunday.
תרי-שבתא	Two of the Sabbath	Monday.
תלת-שבתא	Three of the Sabbath	Tuesday.
ארבעא-שבתא	Four of the Sabbath	Wednesday.
חמשא-שבתא	Five of the Sabbath	Thursday.
ער-שבתא	Six of the Sabbath	Friday.
שבתא	The SABBATH.	Saturday.

All the evangelists seem, as Dr. Hales observes, to have used this calender, both in the word σαββατα, 'a week,' and in retaining the cardinal number μια σαββατων, 'one of the week,' or the first day of the week, to express the day of the resurrection, Matt. xxviii. 1; Mark xvi. 2; Luke xxiv. 1; and John xx. 1. See also Mark xvi. 9, and Luke xviii. 12, Νηστευω δις τω σαββατος. 'I fast twice in the week.' Three of the evangelists also use σαββατα, to denote the Sabbath.

The Jews had also weeks of years: a Sabbatical year, which released all debtors, something in the manner of our statute of limitations; and a week of seven times seven, or forty-nine years, which brought about their jubilee, or general year of return to the original inheritance of their ancestors, Lev. xxv. 8. Seventy of these weeks of years we know were assigned by the angel of God to Daniel as determined to transpire from the event of the decree of Artaxerxes, Ezra vii. 2, to the appearance of the Messiah. Christians are well aware of the importance of this prophecy (see onward); but we lately heard a respectable scholar of the Jewish persuasion contend that these were not weeks of years, but weeks of jubilees, or of fifty years; equivalent therefore to 3500 years, which reckoned, as he stated, from the birth of Edom, the great enemy of the Jews, would bring about a period ending, according to their chronology, about twenty-three years from the present time (1826) a date at which many of them confidently look forward to the appearance of the Messiah.

SECT. III.—OF MONTHS.

The next division of time is that of months. This appears to have been, if not coeval with the creation, at least in use before the flood. As this division is naturally pointed out by the revolution of the moon, the months of all nations were originally lunar; a fact confirmed by the terms ירח iarah, signifying both the month and the full moon in Hebrew; *μην*, the month, and *μηνη*, the moon, Greek; whence, according to the best lexicographers, mensis, Lat. monat, Ang.-Sax., and our English, month.

The division of the year into twelve months, as being founded on the number of full revolutions of the moon in that time, has also been very general. Sir John Chardin, however, informs us that the Persians divided the year into twenty-four months; and the Mexicans into eighteen months of twenty days each. The months generally contained thirty days, or twenty-nine and thirty days alternately; though this rule was far from being without exception. The months of the Latins consisted of sixteen, eighteen, twenty-two, or thirty-six days; and Romulus gave his people a year of ten months, or 304 days.

Biblical months are clearly of three kinds; 1. In the time of the flood they seem to have consisted of thirty days each, for Moses reckons 150 days from the seventh day of the second month, to the seventh day of the seventh month, which forms an interval of exactly five months, of thirty days each The Egyptians and Greeks, it is well known, also used this month. 2. The moon takes 29 days, 12 hours, and 44 minutes in passing from a point in which she is in a straight line with the sun, and returning to it again, or to her square or conjunction, as it is called. This odd time produced the alternate reckoning of twenty-nine or thirty days to the month above alluded to, or the mensis cava and the mensis plini. And thus Hesiod and Thales call the last day of the month *τριηκαδα*, the thirtieth; and the year is represented by an ancient riddle of the Greeks: 'The father is one, the sons twelve; to each belong thirty daughters; half of them white, the other black; and, though immortal, they all perish.' 3. The first appearance of that luminary in the same quarter from month to month, was another mode of accounting for the duration of this period of time: and critics are divided as to which of the last two methods of reckoning regulated the Jewish festivals. The one last-mentioned must clearly depend upon the state of the atmosphere, in part, and be therefore very uncertain.

Ancient nations adopted various names for the months, and arranged them very differently. From this last circumstance arises the variety in the dates of the months; for as the year has been reckoned from different signs in the ecliptic, neither the number nor the quantity of months have been the same, and their situation has likewise been altered by necessary intercalations, which formed *embolismal* months, natural or civil. By the former the solar and lunar years are adjusted to one another; and the latter arise from the defect of the civil year itself. The adar of the Jews, which always consists of thirty days, is an example of the natural embolismal month.

The Romans divided their months into kalends, nones, and ides; which they had a singular method of reckoning backwards. See KALENDS. The 2d, 3d, 4th, 5th, 6th, and 7th of March, May, July, and October, were the nones of these months; but in the other months were the 2d, 3d, 4th, and 5th days only. Thus the 5th of January was its nones; the 4th was pridie nonarum; the 3d tertio nonarum; and the 2d quarto. The ides contained eight days in every month, and were nine days distant from the nones. Thus the 15th day of these four months was the ides, but in the others the 13th; the 12th was pridie iduum, and the 11th tertio iduum. The ides were succeeded by the kalends; our 14th of January, for instance, being the 19th of, or before the kalends of February; the 15th was the 18th of the kalends, and so on till the 31st of January, which was pridie kalendarum; and February 1st was the kalends.

In Europe the month is either astronomical or civil, i. e. measured by the motion of the heavenly bodies; or specified by civil institutions. The astronomical months, being for the most part regulated by the motions of the sun and moon, are thus divided into solar and lunar, of which the former is sometimes also called civil. The astronomical solar months is the time which the sun takes up in passing through a sign of the ecliptic.

The lunar month is periodical, synodical, sidereal, and civil. The synodical lunar month is the time that passes between any conjunction of the moon with the sun and the conjunction following. It includes the motion of the sun eastward during that time; so that a mean lunation consists of 29 d. 12 h. 44 m. 2s., 8921. The sidereal lunar month is the time of the mean revolution of the moon with regard to the fixed stars. As the equinoctial points go backwards about 4 s. in the space of a lunar month, the moon must, in consequence of this retrocession, arrive at the equinox sooner than at any fixed star, and consequently the mean sidereal revolution must be longer than the mean periodical one. The latter cousists of 27 d. 7 h. 43 m. 4 s., 6840. The civil lunar month is computed from the moon, to answer the ordinary purposes of life; and as it would have been inconvenient, in the computation of lunar months, to have reckoned odd parts of days, they have been composed of thirty days, or of twenty-nine and thirty alternately, as the nearest round numbers.

Twelve lunar months, being eleven days less than a solar year, Julius Cæsar ordained that the month should be reckoned from the course of the sun, and not of the moon; and that they should consist of thirty and thirty-one days alternately, February only excepted, which was to consist of twenty-eight days commonly, and of twenty-nine in leap years. We are indebted to Dr. Hales for the following Table of the Months of all the celebrated Ancient Nations

TABLE OF ANCIENT MONTHS.

Julian.	1. Hebrew.	2. Syrian.	3. Attic.	4. Macedon.	5. Syro-Maced.	6. Roman.	7. Egyptian.	8. Persian.	9. Arabian.	10. Paphian.	11. Hindu.
larch 25.	1. *Abib*, or *Nisan*.	*Nisan*	Munychion.	Artemisius.	Xanthicus.	*Martius*.	Pharmathi.	Aban.	Mucharram.	Autocratoricus.	Aswin.
pril 25.	2. *Zif*, or *Iar*.	*Aiar*.	Thargelion.	Dæsius.	Artemisius.	Aprilis.	Pachon.	Adar.	Saphar.	Demachexarsius.	Cartic.
ay 25.	3. *Sivan*.	*Haziran*.	Skirrophorion.	Panemus.	Dæsius.	Maius.	Pauni.	Di.	Rabia I.	Plethutatos.	Agrahayan.
June 25.	4. *Thamuz*.	*Tamuz*.	Hecatombæon	Lous.	Panemus.	Junius.	Epiphi.	Behman.	Rabia II.	Archiereus.	Paush
July 25.	5. *Ab*.	*Ab*.	Metageitnion.	Gorpiæus.	Lous.	Quintilis, seu Julius.	Mesori.	Espendar.	Jomada I.	Esthius.	Magh.
Aug. 25.	6. *Ælul*.	*Ailul*.	Boedromion.	Hyperberetæus	Gorpiæus.	Sextilis, seu Augustus.	Thoth.	Fervardin.	Jomada II.	Romæus.	Phalgun.
Sept. 25.	7. *Ethanim*, or *Tisri*.	*Teshrin* I.	Mæmakterion.	Dius.	Hyperberetæus	September.	Paophi.	Ardabahesht.	Rajab.	Aphrodisius.	Chaitr.
Oct. 25.	8. *Bul*, or *Marheshvan*	*Teshrin* II.	Pyanepsion.	Apellæus.	Dius.	October.	Athyr.	Chordad.	Shaaban.	Apogonicus.	Vaisach.
Nov. 25.	9. *Chisleu*.	*Cainun* I.	Posideon.	Audynæus.	Apellæus.	November.	Choiak.	Tir	Ramadan.	Ænicus.	Jaishth.
Dec. 25.	10. *Tebeth*.	*Cainun* II.	Gamelion.	Peritius.	Audynæus.	December.	Tybi.	Mordad	Shawal.	Iulus.	Ashar.
Jan. 25.	11. *Shebet*.	*Shebet*.	Anthesterion.	Dystrus.	Peritius.	Januarius.	Mechir.	Sharivar.	Dulkaadah.	Cæsarius.	Sravan.
Feb. 25.	12. *Adar*.	*Adar*.	Elaphebolion.	Xanthicus.	Dystrus.	Februarius.	Phamenoth.	Mahr.	Dulhiggish.	Augustus.	Bhadr.

SECT. IV.—OF YEARS.

The highest natural division of time is into years. At first, however, it is probable that the course of the sun through the ecliptic would not be observed, but that all nations would measure their time by the revolutions of the moon. We are certain, at least, that the Egyptian year consisted originally of a single lunation; though at length it included two or three months, and was determined by the stated returns of the seasons. As the eastern nations however, particularly the Egyptians, Chaldeans, and Indians, applied themselves very early to astronomy, they found, by comparing the motions of the sun and moon together, that one revolution of the former included above twelve of the latter. Hence a year of twelve lunations was formed, in every one of which were reckoned thirty days; and hence also the division of the ecliptic into 360 degrees.

The luni-solar year, consisting of 360 days, was in use long before any regular intercalations were made; and historians inform us that the year of all ancient nations was luni-solar. Herodotus relates that the Egyptians first divided the year into twelve parts by the assistance of the stars, and that every part consisted of thirty days. The Thebans corrected this year by adding five intercalary days to it. The old Chaldean year was reformed by the Medes and Persians; and some of the Chinese missionaries have informed us that the luni-solar year was also corrected in China; that the solar year was ascertained in that country to very considerable exactness. The Latin year, before Numa's correction of it, consisted of 360 days, of which 304 were divided into ten months; to which were added two private months not mentioned in the kalendar. Dr. Hales observes, more in detail, 'The primitive sacred year originally consisted of twelve months of thirty days each, or 360 days. This was in use before the deluge, as appears from Noah's reckoning five months, or 150 days, from the seventeenth of the second month, to the seventeenth day of the seventh month; as expressing the time of the rising of the waters; and seven months and ten days more, till the waters were dried up, and Noah and his family left the ark, after a residence therein of 370 days, or a year and ten days, till the seven-and-twentieth day of the second month of the ensuing year. Gen. vii. and viii.

This was also the original Chaldean year; for Berosus, in his History of the Antediluvian Kings of Babylonia, counted their reigns by sari, or decads of years; and a sarus, as Alexander Polyhistor related (apud Syncell, p. 32), was 3600 days, or ten years, consisting each of 360 days.

'After the deluge this primitive form was handed down by Noah and his descendants to the Chaldeans, Egyptians, Phœnicians, Persians, Greeks, Romans, Indians, and Chinese; as is evident from the testimonies of the best and most ancient writers and historians.

'Diodorus Siculus relates, that, at the sepulchre of Osiris, the Egyptian priests appointed to bewail his death, filled 360 milk-bowls every day, to denote the number of days in the primitive Egyptian year, used in his reign. And he represents an ancient custom at Acanthe, near Memphis, on the Libyan side of the Nile, for 360 priests to fetch water every day from the Nile, and pour it into a vessel full of holes, to represent the 360 days in continual flux or succession. Diod. Lib. 1. p. 26, 109.

'The Egyptians attributed the invention of their year to the Phœnician Taaut, Thoth, or Hermes, the son of Misraim, who went with the first colony into Egypt, in the reign of Uranus, who lived in Phœnicia soon after the dispersion, and was a great astronomer, or a diligent observer of the risings and settings of the stars; who discovered the year from the motion of the sun, and the months from the course of the moon, and was deified after his death. Diod. Lib. 3.

'Diodorus Siculus, Plutarch, and Q. Curtius, relate that the Persian kings had 360 concubines, one for each day of the year; who went each in their turns to the king in the evening, and returned in the morning into the house of the women; as we learn from Herod. Lib. 3, 69; and from Scripture. Esth. ii. 12, 15.

'Harpocration, Suidas, and Julius Pollux relate, that, in the original constitution of Athens, the people were divided into four tribes, representing the four seasons of the year; and these tribes into twelve wards, corresponding to the twelve months; and each ward consisted of thirty families, answering to the thirty days of each month; in all 360, as many as the days of the year. Suidas, voce Γεννηταὶ et Γεννῆται. This year, therefore, was introduced into Greece many ages before the arrival of Cecrops in Attica, from Sais in Egypt; probably by the first settlers, the Javanians, or descendants of Japheth; or by the old Pelasgi from Phœnicia.

The first Latin and Roman year consisted of 360 days, as we learn from Plutarch, who says in his life of Numa, that, 'in the reign of Romulus, the months were very irregular, some not being reckoned twenty days, others had thirty-five days, and others more: the Latins not then understanding the difference between the solar and lunar year; but only providing for this one point, that the year should contain 360 days.'

'The Chinese year originally consisted of 360 days; as did also the Mexican, which they divided into eighteen months of twenty days each. Scaliger de Emend. Temp. p. 225.

'From this detail it is evident that the primitive year everywhere throughout the ancient world, consisted only of 360 days, for many ages after the deluge.'

The imperfection of this method of computing time is now very evident. The luni-solar year was about five days and a quarter shorter than the true solar year, and as much longer than the lunar. Hence the months could not long correspond with the seasons; and even in so short a time as thirty-four years, the winter months would have changed places with those of summer. From this rapid variation, Playfair takes notice that a passage in Herodotus, by which the learned have been exceedingly puzzled, may receive a satisfactory solution, viz. that 'in the time of the ancient Egyptian kings, the sun had twice arisen in the place where it had formerly set, and twice set where it had arisen.' By this he supposes it is meant, 'that the beginning of the year had twice gone through all the signs of the ecliptic; and that the sun had arisen and set twice in every day and month of the year.' This, which some have taken for a proof of most extravagant antiquity, he further observes, might have happened in 138 years only; as in that period there would be a difference of nearly two years between the solar and lunar year.

Such evident imperfections could not but produce a reformation every where; and accordingly we find that there was no nation which did not add a few intercalary days at certain intervals. We are ignorant, however, of the person who was the first inventor of this method. The Theban priests attributed the invention to Mercury or Thoth; and it is certain that they were acquainted with the year of 365 days at a very early period. The length of the solar year was represented by the celebrated golden circle of Osymandyas, of 365 cubits circumference; and on every cubit of which was inscribed a day of the year, together with the heliacal risings and settings of the stars. This monarch is supposed to have reigned in the eleventh or thirteenth century before the Christian era.

The Egyptian solar year being nearly six hours shorter than the true one, this inaccuracy, in time, produced another revolution; some circumstances attending which serve to fix the date of the discovery of the length of the year, and which, from the above description of the golden circle, we may suppose to have been made during the reign of Osymandyas. The inundation of the Nile was annually announced by the heliacal rising of Sirius, to which the reformers of the calendar adjusted the beginning of the year, supposing that it would remain immoveable. In a number of years, however, it appeared that their suppositions in this were ill-founded. By reason of the inequality above mentioned, the heliacal rising of Sirius gradually advanced nearly at the rate of one day in four years; so that in 1461 years it completed a revolution, by arising on every succeeding day of the year, and returning to the point originally fixed for the beginning of the year.

This period, equal to 1460 Julian years, was termed the great Egyptian year, or canicular cycle. From the accounts we have of the time that the canicular cycle was renewed, the time of its original commencement may be gathered with tolerable certainty. This happened, according to Censorinus, A. D. 138. Reckoning backward, therefore, from this time for 1460 years, we come to A. A. C. 1322, when the sun was in Cancer, about fourteen or fifteen days after the summer solstice, which happened on July 5. The Egyptians used no intercalation till the time of Augustus, when the corrected Julian year was received at Alexandria by his order; but even this order was obeyed only by the Greeks and Romans who resided in that city; the superstitious natives refusing to make any addition to the length of the year, which had been so long established among them.

At what precise period the true year was observed to consist of nearly six hours more than 365 days, is quite uncertain. Though the priests of Thebes claim the merit of the discovery, Herodotus makes no mention of it; neither did Thales, who introduced the year of 365 days into Greece, ever use any intercalation. Plato and Eudoxus are said to have obtained it as a secret from the Egyptians about eighty years after Herodotus, and to have carried it into Greece, which showed that the knowledge of this fact of the year was at that time recent, and confined to a few learned men.

The ancient Jewish year was luni-solar; and we are informed by tradition, that Abraham preserved in his family, and transmitted to his posterity, the Chaldean form of the year, consisting of 360 days; which remained the same without any correction until the date of the era of Nabonassar. The solar year was adopted among them after their return from the Babylonish captivity; but when subjected to the successors of Alexander in Syria, they were obliged to admit the lunar year into the calendar. To adjust this year to the course of the sun, they added at certain periods a month to Adar, and called it Ve-Adar. They composed also a cycle of nineteen years, in seven of which they inserted the intercalary month. This correction was intended to regulate the months in such a manner, as to bring the 15th of Nisan to the equinoctial point; and likewise the courses of the seasons and feasts in such a manner, that the corn might be ripe at the passover, as the law required.

The Roman year, instituted by Romulus, was evidently very imperfect when Numa undertook to reform it. To make a complete lunar year, he added fifty days to the 304 of Romulus; and from every one of his months, which consisted of thirty-one and thirty days, he borrowed one day. Of these additional sixty days he composed two months; calling the one January, and the other February.

Various other corrections were made; but, when Julius Cæsar obtained the sovereignty of Rome, he found that the months had considerably receded from the seasons to which Numa had adjusted them. To bring them forward to their places, he formed a year of fifteen months, or 445 days; which, on account of its length, and the design with which it was formed, has been called the year of confusion. It terminated on the first of January, A. A. C. 45, and from this period the civil year and months were regulated by the course of the sun. The year of Numa being ten days shorter than the solar year, two days were added by Julius to every one of the months of January, August, and December; and one to April, June, September, and November. He ordained likewise, that an intercalary day should be added every fourth year to the month of February, by reckoning the twenty-fourth day, or sixth of the calends of March, twice over. Hence this year was styled bissextile, or twice sextile, and also leap year, from its leaping a day more than a common year.

The Julian year has been used by modern chronologers, as being a measure of time extremely simple and sufficiently accurate. It is still, however, somewhat imperfect; for as the true solar year consists of 365d. 5h. 48m. 45½s., it appears that in 131 years after the Julian correction, the sun must have arrived one day too soon at the equinoctial point. During Cæsar's reign the vernal equinox had been observed by Sosigenes on the 25th of March; but by the time of the Nicene council it had gone backward to the 21st. The cause of the error was not then known; but in 1582, when the equinox happened on the 11th of March, it was thought proper to give the calendar its last correction.

Pope Gregory XIII. having invited to Rome a considerable number of mathematicians and astrologers, employed ten years in the examination of their several formulæ, and at last gave the preference to that of Aloisius and Antoninus Lelius, who were brothers. Ten days were now cut off in the month of October, and the fifth of that month was reckoned the fifteenth. To prevent the seasons from receding in time to come, he ordained that one day should be added every fourth or bsisextile year as before; and that the 1600th year of the Christian era, and every fourth century thereafter, should be a bissextile or leap year. One day therefore is to be intercalated in the years 2000, 2400, 2800, &c. but in the other centuries, as 1700, 1800, 1900, 2100, &c. it is to be suppressed, and these are to be reckoned as common years. Even this correction, however, is not absolutely exact; but the error must be very inconsiderable, and scarce amounting to a day and a half in 5000 years.

The commencement of the year has been determined by the date of some memorable event, such as the creation of the world, the universal deluge, a conjunction of the planets, the incarnation of our Saviour, &c. and of course has been referred to different points in the ecliptic. The Chaldean and the Egyptian years were dated from the autumnal equinox. The ecclesiastical year of the Jews began in the spring; but, in civil affairs, they retained the epoch of the Egyptian year. The ancient Chinese reckoned from the new moon nearest to the middle of Aquarius, but, according to some accounts, the beginning of their year was transferred (A.A.C. 1740) to the new moon nearest to the winter solstice. This likewise is the date of the Japanese year. Diemschied, or Gemschid, king of Persia, observed, on the day of his public entry into Persepolis, that the sun entered into Aries. In commemoration of this event, he ordained the beginning of the year to be removed from the autumnal to the vernal equinox. This epoch was denominated Neurez, viz. new day; and is still celebrated with great pomp and festivity. See EPOCHS.

The ancient Swedish year commenced at the winter solstice, or rather at the time of the sun's appearance on the horizon, after an absence of about forty days. The feast of this epoch was solemnised on the twentieth day after the solstice. Some of the Grecian states computed from the vernal, some from the autumnal equinox, and others from the summer tropic. The year of Romulus commenced in March, whence the four last months September, October, November, and December, were really what their names import, the seventh, eighth, ninth, and tenth months. Numa without altering these names, began the year in January, which Cæsar continued. The Turks and Arabs date the year from the 16th July; and the American Indians reckon from the first appearance of the new moon of the vernal equinox. The church of Rome has fixed new-year's-day on the Sunday that corresponds with the full moon of the same season. The Venetians, Florentines, and Pisans in Italy, and inhabitants of Treves in Germany, begin the year at the vernal equinox. The ancient clergy reckoned from the 25th of March; and this method was observed in Britain, until the introduction of the new style (A. D. 1752); after which our year commenced on the 1st day of January.

EPACTS, or ἡμεραι επακται, are 'additional days', requisite to find out the moon's age. Since the lunar year of 354 days is deficient from the solar of 365 days, by eleven days, this deficiency will run through every year of the lunar cycle. Thus the epact of the first year of the cycle is 11, because eleven days are to be added to the lunar, in order to complete the solar year; the epact of the second is 22; the epact of the third 33—30=3, because the moon's age cannot exceed 30 days; the epact of the fourth, 14; and so on till the last year of the cycle, whose epact is 29; and the epact of the first year of the next cycle, 11, as before. Dr. Hales gives the following rules to show the use of epacts.

I. *To find the year of the lunar cycle*, or the golden number, in any given year of our Lord. Add one to the given year, then divide the sum by nineteen, the remainder, if any, is the golden number; if there be no remainder, then nineteen is the golden number.

II. *To find the epact in any given year.*—If the year precede the alteration of the style, A. D. 1752, first find the golden number of that year; multiply it by eleven; if the product be less than thirty, it will be epact; but if greater, divide it by thirty, and the remainder will be the epact. But if the year follow A. D. 1752, because eleven days were then struck out of the calendar, the epact so found will require correction. If it be greater than eleven, subtract eleven from it; if less, add to it thirty, and subtract eleven from the sum: the remainder, in either case, will give the epact.

III. *To find the moon's age on any given day in the year.*—Add together the epact of the given year, the number of months from March inclusive, and the proposed day of the month; if the sum be less than thirty, it will be the moon's age, but if greater, its remainder, when divided by thirty, will be the moon's age.

SECTION V. OF CYCLES AND OTHER PERIODICAL REVOLUTIONS OF YEARS.

Besides these natural divisions of time, arising immediately from the revolutions of the heavenly bodies, there are others formed from some of the less obvious consequences of these revolutions, which are called cycles, from the Greek κυκλος, a circle. The most remarkable of these are the following:—

1. The *cycle of the sun* is a revolution of twenty-eight years, in which time the days of the months return again to the same days of the week; the sun's place to the same signs and degrees of

the ecliptic on the same months and days, so as not to differ one degree in 100 years; and the leap years begin the same course over again with respect to the days of the week on which the days of the months fall.

The *cycle of the moon*, or the *golden number*, is a revolution of nineteen years; in which time the conjunctions, oppositions, and other aspects of the moon, are within an hour and a half of being the same as they were on the same days of the months nineteen years before.

The *indiction* is a revolution of fifteen years, used only by the Romans for indicating the times of certain payments made by the subjects to the republic; it was established by Constantine, A. D. 312.

There is a remarkable prophecy, says an excellent modern Treatise on Astronomy, delivered to us in the ninth chapter of the book of Daniel, which, from a certain epoch, fixes the time of restoring the state of the Jews, and of building the walls of Jerusalem, the coming of the Messiah, his death, and the destruction of Jerusalem. But some parts of this prophecy (ver. 25) are so injudiciously pointed in our English translation of the bible, that, if they be read according to those stops of pointing, they are quite unintelligible. But the learned Dr. Prideaux, by altering these stops, makes the sense very plain: and, as he seems to me to have explained the whole of it better than any other author I have read on the subject, I shall set down the whole of the prophecy according as he has pointed it, to show in what manner he has divided it into four different parts.

Ver. 24. 'Seventy weeks are determined upon thy people, and upon thy holy city, to finish the transgression, and to make an end of sins, and to make reconciliation for iniquity, and to bring in everlasting righteousness, and to seal up the vision and the prophecy, and to anoint the most Holy. Ver. 25. Know therefore and understand, that from the going forth of the commandment to restore and build Jerusalem unto the Messiah, the prince, shall be seven weeks and threescore and two weeks, the street shall be built again, and the wall even in troublous times. Ver. 26. And after threescore and two weeks shall Messiah be cut off, but not for himself, and the people of the prince that shall come, shall destroy the city and sanctuary, and the end thereof shall be with a flood, and unto the end of the war desolations are determined. Ver. 27. And he shall confirm the covenant with many for one week, and in the midst of the week he shall cause the sacrifice and the oblation to cease, and for the overspreading of abominations he shall make it desolate even until the consummation, and that determined shall be poured upon the desolate.'

This commandment was given to Ezra by Artaxerxes Longimanus, in the seventh year of that king's reign (Ezra, ch. vii., ver. 11—26.) Ezra began the work which was afterwards accomplished by Nehemiah; in which they met with great opposition and trouble from the Samaritans and others, during the first seven weeks, or forty-nine years.

From this accomplishment, till the time when Christ's messenger, John the Baptist, began to preach the kingdom of the Messiah, sixty-two weeks, or 434 years.

From thence, to the beginning of Christ's public ministry, half a week, or three years and a half.

And from thence to the death of Christ, half a week, or three years and a half; in which half week he preached and confirmed the covenant of the gospel with many.

In all, from the going forth of the commandment till the death of Christ, seventy weeks, or 490 years.

And, lastly, in a very striking manner, the prophecy foretels what should come to pass after the expiration of the seventy weeks; namely, the destruction of the city and sanctuary by the people of the prince that was to come; which were the Roman armies under the command of Titus their prince, who came upon Jerusalem as a torrent, with their idolatrous images, which were an abomination to the Jews, and under which they marched against them, invaded their land, and besieged their holy city, and, by a calamitous war brought such utter destruction upon both, that the Jews have never been able to recover themselves, even to this day.

Now, both by the undoubted canon of Ptolemy, and the famous era of Nabonassar, the beginning of the seventh year of the reign of Artaxerxes Longimanus, king of Persia (who is called Ahasuerus in the book of Esther), is pinned down to the 4256th year of the Julian period, in which year he gave Ezra the above-mentioned ample commission: from which count 490 years to the death of Christ, and it will carry the same to the 4746th year of the Julian period.

Our Saturday is the Jewish Sabbath: and it is plain, from St. Mark, ch. xv. ver. 42, and St. Luke, ch. xxiii. ver. 54, that Christ was crucified on a Friday, seeing the crucifixion was on the day next before the Jewish Sabbath. And, according to St. John, ch. xviii. ver. 28, on the day that the passover was to be eaten, at least by many of the Jews.

The Jews reckoned their months by the Moon, and their years by the apparent revolution of the Sun: and they eat the passover on the fourteenth day of the month of Nisan, which was the first month of their year, reckoning from the first appearance of the new moon, which at that time of the year might be on the evening of the day next after the change, if the sky was clear. So that their fourteenth day of the month answers to our fifteenth day of the moon, on which she is full. Consequently, the passover was always kept on the day of full moon.

And the full moon at which it was kept, was that one which happened next after the vernal equinox. For Josephus expressly says (Antiq. B. iii. ch. 10). 'The passover was kept on the fourteenth day of the month of Nisan, according to the Moon, when the Sun was in Aries.' And the Sun always enters Aries at the instant of the vernal equinox; which, in our Saviour's time fell on the 22nd day of March.

The dispute among chronologers about the year of Christ's death, is limited to four or five years at most. But, as we have shown that he was crucified on the day of a pascal full moon, and on a Friday, all that we have to do, in order to ascertain the year of his death, is only to compute in which of those years there was a passover full moon on a Friday. For the full moons anticipate eleven days every year, (twelve lunar months being so much short of a solar year), and therefore, once in every three years at least, the Jews were obliged to set their passover a whole month forwarder than it fell by the course of the moon, on the year next before, in order to keep it at the full moon next after the equinox; therefore, there could not be two passovers on the same nominal day of the week, within the compass of a few neighboring years. And I find by calculation, the only passover full moon that fell on a Friday, for several years before and after the disputed year of the crucifixion, was on the 3rd day of April, in the 4746th year of the Julian period, which was the 490th year after Ezra received the above-mentioned commission from Artaxerxes Longimanus, according to Ptolemy's canon, and the year in which the Messiah was to be cut off, according to the prophecy, reckoning from the going forth of that commission or commandment: and this 490th year was the thirty-third year of our Saviour's age, reckoning from the vulgar era of his birth; but the thirty-seventh reckoning from the true era thereof.

And, when we reflect on what the Jews told him sometime before his death, (John viii. 57), 'Thou art not yet fifty years old,' we must confess, that it should seem much likelier to have been said to a person near forty than to one but just turned thirty. And we may easily suppose, that St. Luke expressed himself only in round numbers, when he said that Christ was baptised about the thirtieth year of his age, when he began his public ministry; as our Saviour himself did, when he said he should lie three days and three nights in the grave.

Now the 4746th year of the Julian period, continues the above able author, which we have astronomically proved to be the year of the crucifixion, was the fourth year of the 202nd Olympiad; in which year, Phlegon, a heathen writer, tells us, there was the most extraordinary eclipse of the Sun that ever was seen. But I find by calculation, that there could be no total eclipse of the Sun at Jerusalem, in a natural way in that year. So that what Phlegon here calls an eclipse of the Sun, seems to have been the great darkness for three hours at the time of our Saviour's crucifixion, as mentioned by the evangelists: a darkness altogether supernatural, as the Moon was then in the side of the heavens opposite to the Sun; and therefore could not possibly darken the Sun to any part of the Earth.

The year of our Saviour's birth, according to the vulgar era, was the ninth year of the solar cycle, the first year of the lunar cycle; and the 312th year after his birth was the first year of the Roman indiction. Therefore, to find the year of the solar cycle, add 9 to any given year of Christ, and divide the sum by 28, the quotient is the number of cycles elapsed since his birth, and the remainder is the cycle for the given year: if nothing remains, the cycle is 28. To find the lunar cycle, add one to the given year of Christ, and divide the sum by 19; the quotient is the number of cycles elapsed in the interval, and the remainder is the cycle for the given year: if nothing remains, the cycle is 19. Lastly, subtract 312 from the given year of Christ, and divide the remainder by 15; and what remains after this division is the indiction for the given year: if nothing remains, the indiction is 15.

Although the deficiency in the lunar cycle of an hour and a half every nineteen years be but small, yet in time it becomes so sensible as to make a whole natural day in 310 years. So that, although this cycle be of use, when the golden numbers are rightly placed against the days of the months in the calendar, as in the common prayer books, for finding the days of the mean conjunctions or oppositions of the sun and moon, and consequently the time of Easter; it will only serve for 310 years, old style. For as the new and full moons anticipate a day in that time, the golden numbers ought to be placed one day earlier in the calendar for the next 310 years to come. These numbers were rightly placed against the days of new moon in the calendar, by the council of Nice, A. D. 325; but the anticipation which has been neglected ever since, is now grown almost into five days; and therefore all the golden numbers ought now to be placed five days higher in the kalendar for the old style than they were at the time of the said council; or six days lower for the new style, because at present it differs eleven days from the old.

In the following table, the golden numbers under the months stand against the days of new moon in the left hand column, for the new style; adapted chiefly to the second year after leap-year, which is the nearest mean for all the four; and will serve till the year 1900. Therefore, to find the day of new moon in any month of a given year till that time, look for the golden number of that year (which will be found by Table II. under the desired month), and against it you have the day of new moon in the left hand column. Thus, suppose it were required to find the day of new moon in September, 1798; the golden number for that year is thirteen, which I look for under December, and right against it in the left hand column you will find seven, which is the day of new moon in that month. N. B. If all the golden numbers, except seventeen and six, were set one day lower in the table, it would serve from the beginning of the year 1900 till the end of the year 2199.

TABLE I.

DAYS.	JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1	9		9	17	17	6				11		19
2		17			6	14	14	3	11		9	
3	17	6	17	6			3	1		19	8	8
4	6		6	14	14	3			19	8		16
5		14			3	11	11	19	8		16	
6	14	3	14	3			19			16	5	5
7	3		3	11	11	19		8	16			13
8		11			19	8	8	16	5	5	13	
9	11	19	11	19						13		2
10			19	8	8	16	16	5	13		2	10

DAYS.	JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
11	19	8					5	13	2	2	10	
12	8	16	8	16	16	5				10		18
13					5	13	13	2	10		18	7
14	16	5	16	5			2	10	18	18	7	
15	5		5	13	13	2				7		15
16		13			2	10	19	18	7		15	
17	13	2	13	2			18	7		15	4	4
18	2		2	10	10	18			15			12
19		10			18	7	7	15	4	4	12	
20	10	18	10	18			15			12	1	1
21	18		18	7	7	15		4	12			9
2		7			15	4	4	12	1	1	9	
23	7	15	7	15			12			9	17	17
24			15	4	4	12		1	9			6
25	15	4			12		1	9	17	17	6	
26	4		4	12		1				6		15
27		12		1	1	9	9	17	6		14	
28	12	1	12		9		17	6	14	14	3	3
29	1		1	9		17				3		11
30					17	6	6	14	3		11	
31	9		9				14	3		11		19

The second table shows the golden number for 4000 years after the birth of Christ, by looking for the even hundreds of any given year at the left hand, and for the rest to make up that year at the head of the table; and where the columns meet, you have the golden number for the given year. Thus, suppose the golden number was wanted for the year 1798, look for 1700 at the left hand of the table, and for 98 at the top of it; then, guiding your eye downward from 98 to the angle over against 1700, you will find 13, which is the golden number for that year. But as the lunar cycle of nineteen years sometimes includes five leap years, and at other times only four, this table will sometimes vary a day from the truth in leap years after February. And it is impossible to have one more correct, unless we extend it to four times nineteen or seventy-six years; in which there are nineteen leap years without a remainder. But even then to have it of perpetual use, it must be adapted to the old style; because, in every centurial year not divisible by four, the regular course of leap years is interrupted in the new; as was the case in the year 1800.

TABLE II.

Table, showing the Golden Number (which is the same both in the Old and New Style), from the Christian Era, to A. D. 4000.

			Years less than an hundred.																		
Hundreds of Years.			0 19 38 57 76 95	1 20 39 58 77 96	2 21 40 59 78 97	3 22 41 60 79 98	4 23 42 61 80 99	5 24 43 62 81	6 25 44 63 82	7 26 45 64 83	8 27 46 65 84	9 28 47 66 85	10 29 48 67 86	11 30 49 68 87	12 31 50 69 88	13 32 51 70 89	14 33 52 71 90	15 34 53 72 91	16 35 54 73 92	17 36 55 74 93	18 37 56 75 94
50	1900	3800	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
100	2000	3900	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5
200	2100	4000	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10
300	2200	&c.	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
400	2300		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1
500	2400		7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6
600	2500		12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11
700	2600		17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
800	2700		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2
900	2800		8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7
1000	2900		13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12
1100	3000		18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1200	3100		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3
1300	3200		9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8
1400	3300		14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13
1500	3400		19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1600	3500		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4
1700	3600		10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9
1800	3700		15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14

The cycle of Easter, or the Dionysian period, is a revolution of 532 years, found by multiplying the solar cycle 28, by the lunar cycle 19. If the new moons did not anticipate upon this cycle, Easter day would always be the Sunday next after the first full moon which follows the 21st of March. But on account of the above anticipation, to which no proper regard was paid before the alteration of the style, the ecclesiastical Easter has several times been a week different from the true Easter within this last century: which inconvenience is now remedied by making the table, which used to find Easter for ever, in the common Prayer Book, of no longer use than the lunar difference from the new style will admit of. The earliest Easter possible is the 22nd of March, the latest the 25th of April. Within these limits are thirty-five days, and the number belonging to each of them is called the number of direction; because thereby the time of Easter is found for any given year.

The first seven letters of the alphabet are commonly placed in the annual almanacks, to show on what days of the week the days of the months fall throughout the year. As one of those letters stands against Sunday, as it is printed in a capital form, and called the dominical letter; the other six being inserted in small characters, to denote the other six days of the week. As a common Julian year contains 365 days, if this number be divided by seven there will remain one day: whence the year begins and ends on the same day of the week; and therefore the next year will begin on the day following. Hence, when January begins on Sunday, A is the domical letter for that year: then, because the next year begins on Monday, the Sunday will fall on the seventh day, to which is annexed the seventh letter G, which therefore will be the dominical letter for all that year; and, as the third year will begin on Tuesday, the Sunday will fall on the sixth day; therefore F will be the dominical letter for that year. Whence it is evident, that the dominical letters will go annually in a retrograde order thus, G, F, E, D, C, B, A. And in the course of seven years, if they were all common ones, the same days of the week, and dominical letters would return to the same days of the months. But because there are 366 days in a leap year, if this number be divided by seven, there will remain two days over and above the fifty-two weeks, of which the year consists. And therefore, if the leap year begins on Sunday, it will end on Monday; and the next year will begin on Tuesday, the first Sunday whereof must fall on the 6th of January, to which is annexed the letter F, and not G, as in common years. From the leap year, thus returning every fourth year, the order of the dominical letters is interrupted; and the series cannot return to its first state till after four times seven or twenty-eight years; and then the same days of the months return in order to the same days of the week as before.

The great *Julian period* arises from the multiplication of the solar cycle of twenty-eight years into the lunar cycle of nineteen years, and the Roman indiction of fifteen years. It consists of 7980 years, and had its beginning 764 years before Strauchius's supposed year of the creation (for no later could all the three cycles begin together), and is not yet completed. It therefore includes all others, cycles, periods, and eras. There is but one year in the whole period that has the same numbers for the three cycles of which it is made up; and therefore, if historians had remarked in their writings the cycles of each year, there had been no dispute about the time of any action recorded by them.

The *Dionysian*, or *vulgar era* of Christ's birth, was about the end of the year of the Julian period 4713; and consequently the first year of his age, according to that account, was the 4714th year of the said period. Therefore, if to the current year of Christ we add 4713, the sum will be the year of the Julian period. So the year 1798 will be found to be the 6511th year of that period. Or, to find the year of the Julian period answering to any given year before the first year of Christ, subtract the number of that given year from 4714, and the remainder will be the year of the Julian period. Thus, the year 585 before the first year of Christ (which was the 584th before his birth) was the 4129th year of the said period. To find the cycles of the sun, moon, an indiction for any given year of this period, divide the given year by twenty-eight, nineteen, and fifteen; the three remainders will be the cycles sought, and the quotients the number of cycles run since the beginning of the period. So in the above 4714th year of the Julian period, the cycle of the sun was ten, the cycle of the moon two, and the cycle of indiction four; the solar cycle having run through 168 courses, the lunar 248, and the indiction 314.

The *Chinese cycle* of sixty years, employed certainly from an early period, is entirely of a civil nature, like the indiction of the Romans; and has no relation to their former astronomical calculations.

PART II.

HISTORICAL CHRONOLOGY.

SECT. I.—OF ASTRONOMICAL OBSERVATIONS.

The first great foundation of historical chronology is astronomical observations. The *eclipses* of the sun and moon especially, and the aspects of the other planets, have been justly called public and celestial characters of the times, as their calculations afford chronologers infallible proofs of the precise epochs in which a great number of the most signal events in history have occurred. So that in chronological matters we cannot make any great progress if we are ignorant of the use of astronomical tables, and the calculation of eclipses. The ancients regarded the latter as prognostics of the fall of empires, of the loss of battles, the death of monarchs, &c. To this superstition, this wretched ignorance, we happily owe the vast labors that historians have taken to record so great a number of them. The most able chronologers have collected them with still greater labor. Calvisius, for example, founds his chronology on 144 eclipses of the sun, and 127 of the moon, which he says he had calculated.

Modern chronologers have not been remiss in furnishing us with this kind of date to the greatest extent possible. Dr. Playfair and Mr. Ferguson both supply valuable tables of eclipses; those of the former going back to B. C. 7 and extending to A. D. 1900. Dr. Hales selects from the whole the following as the most important.

Ancient Eclipses as connected with certain leading Facts of History.

B. C.			
753.	S.	April 21.	Old calculation; the day of the foundation of Rome. Plutarch.
	S.	July 5.	Aft. 4, 30; dig. 4.
721.	M.	March 19.	Aft. 10, 34, total 1; first year of Mardok Empad, king of Babylon. Ptolemy.
720.	S.	February 22.	Morn. 10; dig. 8½. China.
	M.	March 8.	Aft. 11, 56; dig. 3½; second of Mardok Empad. Ptolemy.
715.	S.	May 26.	Aft. 5, 12; dig. 9½; death of Romulus. Livy.
621.	M.	April 21.	Morn. 6, 22; dig. 2½; fifth of Nabopolassar. Ptolemy.
607.	S.	July 30.	Aft. 1, 55; dig. 8; supposed eclipse of Thales, according to Calvisius
603.	S.	May 18.	Morn. 9½, total; same, Costard, Montucla, Kennedy.
601.	S.	Sept. 19.	Morn. 10, 57; dig. 9; same, Usher.
597.	S.	July 9.	Aft. 3; dig. 10, 33′; same, Petævius, Marsham, Bouhier, Larcher.
585.	S.	May 28.	Aft. 3; dig. 11, 20′; same, Pliny, Scaliger, Newton, Ferguson, Vignoles, Jackson.
547.	S.	October 22.	Aft. 0, 35, total; when Cyrus took Larissa in Media. Xenophon Anab.
523.	M.	July 17.	Morn. 0, 12; dig. 7½; seventh of Cambyses. Ptolemy.
502.	M.	Nov. 19.	Morn. 8, 21; dig. 2; twentieth of Darius Hystaspes.
491.	M.	April 25.	Morn. 0, 12; dig. 1¾; thirty-fourth of Darius Hystaspes.
481.	S.	April 19.	Aft. 2, 27; dig. 7; when Xerxes left Susa to invade Greece. Herodotus.
480.	S.	October 2.	Aft. 2.; dig. 8; soon after the battle of Salamis. Herodotus.
478.	S.	February 13.	Aft. 2; dig. 11½; year after the Persian war.
463.	S.	April 30.	Aft. 3; dig. 11; Egyptians revolt from the Persians.
431.	S.	August 3.	Aft. 5, 53; total; first year of the Peloponnesian war. Thucydides.
424.	S.	March 22.	Morn. 6, 34; dig. 9; eighth year of the war. Thucydides.
413.	M	August 27.	Aft. 10, 15; total; nineteenth year of the war; defeat of Nicias and the Athenians at Syracuse. Thucydides.
406.	M.	April 15.	Aft. 8, 50; total; twenty-sixth year of the war.
404.	S.	Sept. 2.	Morn. 9, 16; last year of the war. Xenophon.
394.	S.	August 14.	Morn. 9, 17; dig. 11; Conon defeats the Lacedæmonians in a sea-fight at Cnidus. Xenophon.
331.	M.	Sept. 20.	Aft. 6, 35; total; eleven days before the battle of Arbela. Plutarch.
200.	M.	March 19.	Morn. 2, 48; total. } Ptolemy.
		Sept. 11.	Morn. 2, 15; total. } Ptolemy.
		First year of the Macedonian war.	
190.	S.	March 14.	Morn. 6; dig. 11; first year of the Syrian war.
188.	S.	July 17.	Morn. 8, 38; dig. 10¾; three days' supplication decreed at Rome. Livy, 34, 36.
168.	M.	June 21.	Aft. 8, 2; total; night before the battle of Pydna, and end of the Macedonian war. Livy.
63.	M.	October 27.	Aft. 6, 22; total; Jerusalem taken by Pompey this year.
48.	M.	January 18.	Aft. 10; total; battle of Pharsalia; death of Pompey this year.
45.	M.	November 7.	Morn. 2; total; first Julian year.
31.	S.	August 20.	Sun-set, great eclipse; battle of Actium, Sept. 3.
4.	M.	March 13.	Morn. 2, 45; dig. 6; before Herod the Great's death. Josephus.
A. D.			
14.	M.	Sept. 27.	Morn. 5; total; mutiny of the Pannonian legions, quelled thereby, after the death of Augustus. Tacitus, Anal. 1.
29.	S.	Nov. 24.	Morn. 9½; total; death of John Baptist this year.
31.	M.	April 25.	Aft. 9; dig. 4; a month after the crucifixion.
33.	S.	Sept. 12.	Morn. 10½; annular.
45.	S.	August 1.	Morn. 10; dig. 5; birth day of the emperor Claudius.
46.	M.	Dec. 31.	Aft. 9½; total.
59.	S.	April 30.	Aft. 1; central; Nero murdered his mother Agrippina this year.
69.	M.	October 18.	Aft. 10; dig. 11; night of the battle of Cremona between the armies of Vespasian and Vitellius. Dio. lib. 65. Tacit. Hist. 3, 23. The year before the destruction of Jerusalem by Titus, A. D. 70, hereby ascertained.

Again, the grand conjunction of the two superior planets, Saturn and Jupiter, which, according to Kepler, occurs once in 800 years, in the same point of the zodiac, and which has happened only eight times since the creation (the last time in the month of December, 1603,) may also furnish chronology with incontestible proofs. The same may be said of the transit of Venus over the sun, which has been observed in our days, and all the other uncommon positions of the planets.

But among these celestial and natural characters of times, there are also some that are named civil or artificial, and which, nevertheless, depend on astronomic calculation. Such are the solar and lunar cycles, the Roman indiction, the feast of Easter, the bissextile year, the jubilees, the sabbatic years, the Olympic games of the Greeks, and the hegira of the Mahommedans, &c. Astronomical chronology also teaches us to calculate the precise year of the Julian period, in which any remarkable epoch happened. And to these may be added the periods, eras, epochs, and years of different nations, ancient and modern. Thus the period or era of the Jews commences with the creation of the world; that of the ancient Romans with the foundation of the city of Rome; that of the Greeks at the establishment of the Olympic games; that of Nebuchadnezzar, with the advancement of the first king of Babylon to the throne; the Yezdegerdic years, with the last king of the Persians of that name; the hegira of the Turks with the flight of Mahomet from Mecca to Medina, &c. The year of the birth of Christ was the 4713th year of the Julian period, according to the common method of reckoning.

Sect. II.—Of the Testimonies of Authors.

The second principal foundation of historic chronology is the testimony of authors. Though historians have not been clothed with infallibility, it would be making a very unjust judgment of mankind to treat them generally either as dupes or imposters: there are authors, universally esteemed, who relate facts that in themselves are worthy of belief, and whose veracity and credibility it would be irrational to doubt. The unanimous concurrence of the most respectable historians supplies testimony to many leading facts of history that is invaluable. To avoid, however, the danger of adopting error for truth, and to be satisfied of a fact that appears doubtful in history, we may use the four following rules, as founded in reason.

1. A particular regard is due to the testimonies of those who wrote at the time the events happened, and that have not been contradicted by any contemporary author of known authority. Who can doubt, for example, of the truth of the facts related by Anson, in his history of his voyage round the world, although he is now known not to have written the published narrative of them. The admiral saw all the facts mentioned with his own eyes, and the work was published when two hundred companions of his voyage were still living in London, and could have immediately contradicted any false or exaggerated relations. 2. After the contemporary authors, we should give the next greatest credit to those who lived near the time the events happened. 3. Those doubtful narratives, which are given by authors that are but little known, can have no weight if at variance with reason, or established facts. 4. We must distrust the truth of a narrative furnished by modern authors when they do not agree among themselves nor with ancient historians, who are to be regarded as original sources. We should especially doubt the truth of those brilliant portraits that are drawn at pleasure by such as never knew the persons they are intended for, and even made several centuries after their decease.

The most pure and most fruitful source of ancient history is doubtless to be found in the Bible. Let us here for a moment cease to regard it as divine, and presume to treat it only as a common history. Now when we consider the writers o the books of the Old Testament, sometimes as authors, sometimes as ocular witnesses, and sometimes as respectable historians—whether we reflect on the simplicity of the narration, and the air of truth that is there constantly visible, or whether we consider the care that the people, the governments, and the learned men of all ages, have taken to preserve the text, or have regard to the happy conformity of the chronology of the holy Scriptures with that of profane history, as well as with that of Josephus and other Jewish writers; and lastly, when we consider that the books of the holy Scripture alone furnish us with an accurate history of the world, from the creation, through the line of patriarchs, judges, kings, and princes of the Hebrews; and that we may, by its aid, form an almost entire series of events down to the birth of Christ, or the time of Augustus, which comprehends a space of about 4000 years, some small interruptions excepted, and which are easily supplied by profane history: when all these reflections are justly made, we must allow that the Scriptures form a series of books which merit the first rank among all the sources of ancient history.

It has been objected that these books contain contradictions; but the most able interpreters have reconciled these seeming contradictions. It has been said that the chronology of the Hebrew text and the Vulgate do not agree with the chronology of the version of the Septuagint, but the soundest critics have shown that they may be made to agree. It has been also objected that the Scriptures abound with miracles and prodigies; but all nature may be said to abound with prodigies. There are limits in every science, beyond which human knowledge cannot go, and beyond which all is miraculous. But what wise philosopher will presume to say that anything is impossible for infinite power; or that the Almighty, by giving certain laws to what we call nature, has thereby limited and circumscribed his own omnipotence to all eternity, in such a manner, that he can in no instance deviate from or alter them, however much particular circumstances in his own moral government of the universe may require such a deviation. See our articles, MIRACLE and REVELATION

It may be further observed, that we have a new motive in modern times to the investigation of this most useful science. Voltaire, Bailey, and other inferior witlings of infidelity, have thought proper to assail the Bible chronologists as 'misregulators of time;' if it is demonstrable that a rectified system of chronology, which must include all the great events of Scripture, can form the only correct basis of general history, infidelity must have double cause to blush; and from the attention we have been able to pay to Dr. Hales's labors in this department of science, we have no hesitation in avowing our belief of the fact.

Sect. III.—Of Æras or Epochs.

As there are certain fixed points in the heavens, from which astronomers begin their computations, so there are certain points of time from which historians begin to reckon; and these points or roots of time are called æras or epochs. These form the third principal foundation of chronology. They are those fixed points in history that have never been contested, and of which there can, in fact, be no doubt. Chronologers fix on the events that are to serve as epochs, in a manner quite arbitrary; but this is of little consequence, provided the dates of these epochs agree, and that there is no contradiction in the facts themselves.

The most remarkable æras are, those of the Creation, the Flood, the Greek Olympiads, the building of Rome, the æra of Nabonassar, the death of Alexander, the birth of Christ, the Arabian Hegira, and the Persian Yesdegird: all which, together with several others of less note, have their beginnings fixed by chronologers to the years of the Julian period, to the age of the world at those times, and to the years before and after the birth of our Savior.

The vulgar æra of Christ's birth was never settled till the year 527, when Dionysius Exiguus, a Roman abbot, fixed it to the end of the 4713th year of the Julian period, which was four years too late; for our Savior was born before the death of Herod. And, according to the testimony of Josephus (book xvii. c. 8), there was an eclipse of the moon in the time of Herod's last illness; which eclipse appears by our astronomical tables to have been in the year of the Julian period 4710, March 13th, at three hours past mid-night, at Jerusalem. Now, as our Savior must have been born some months before Herod's death, since in the interval he was carried into Egypt, the latest time in which we can fix the true æra of his birth is about the end of the 4709th year of the Julian period.

But we may here notice the light that has been thrown on some of the most important epochs by the New Analysis of Dr. Hales, unquestionably the most elaborate, and one of the most ingenious of modern works on this science.

1. Though rejecting that of the vulgar Christian era, which commences with the Julian year, January 1, U.C. 754, according to the Varronian computation, as incorrect, he argues for its being retained in a chronological system, 'as a long established era,' commencing from a known fixed epoch, both backwards and forwards, and furnishing the most convenient standard of comparison for all others.

2. Respecting the epoch of the deluge, he contends that Usher's date, attached to our English bibles, has been properly relinquished by the ablest chronologers of the present time, from its irreconcileableness with the rise of the primitive empires, the Assyrian, Egyptian, Indian, and Chinese; all suggesting earlier dates of the deluge. Hence, the authors of that great and elaborate work, the Ancient Universal History, adopted in preference thereto, the date of the deluge furnished by the Samaritan Hebrew text; and their example has been followed by captain Wilford, in his Remarks on the Hindu Chronology, published in the *Asiatic Researches*.

He fixes it B.C. 3155; and after a variety of further valuable observations of the era of the nativity, and a table of the chronology of our Lord's ministry, for which we regret we have not room; he supplies, after a most careful review of the several systems, ancient and modern, of chronology, the following

Table of Remarkable Eras.

		B.C.
Creation of the world		5411
Julian period (January 1)		4713
Deluge		3155
Cali yuga, Indian era of the deluge		3102
Dispersion of mankind		2614
Nimrod reigns in Assyria		2554
Mehes reigns in Egypt		2412
Teheou, or division of the Chinese empire into twelve provinces		2207
Abraham born		2153
Settlement of the Israelites in Egypt		1863
Exode of the Israelites from Egypt		1648
Cecrops reigns at Athens		1556
Sesostris reigns in Egypt		1308
Destruction of Troy		1183
Foundation of Solomon's temple		1027
Era of Iphitus (July 1).		884
Era of the Olympiads (July 19).		776
Foundation of Rome (April 21).		753
Era of Nabonassar (February 26).		747
Era of Seleucidæ, or Alexander's successors (October 1).		312
Era Cæsaria, at Antioch (September 1).		49
Era Juliana (January 1).		46
Era Hispanica (January 1).		38
Vict. Actiaca (August 29).		30
		A. D.
Vulgar Christian era. (January 1).		1
Cycle of the sun	10	
——— moon	2	
——— indication	4	
Dominical letter	B	
First year after Bissextile.		
Era of Diocletian, or of Martyrs. (Sept. 17).		284
Era of Yezdegird (June 16).		632
Hegira, or flight of Mahomet (July 16).		622
Era Gelalæa (March 14).		1074
Era of the Reformation.		
— England (Wickliffe)		1360
— Bohemia (Huss)		1405
— Germany (Luther)		1517
— Switzerland (Zuinglius)		1519
— Denmark		1521
— France (Calvin)		1529

Protestants first so called.

—— Sweden (Petri)	1530
—— Ireland (Brown)	1535
—— England completed (Cranmer, Bucer, Fagius, &c.	1547
—— Scotland (Knox)	1560
—— Netherlands	1566

SECT. IV.—OF ANCIENT MEDALS, COINS, MONUMENTS, &c.

Medals, monuments, and inscriptions, form the fourth and last principal foundation, or assistant of chronology. It is scarcely more than 150 years since close application has been made to the study of these; and we owe to the celebrated Spanheim the greatest obligations, for the progress that is made in this method: his excellent work, De Præstantia et usu Numismatum Antiquorum, has shown the great advantages of it; and it is evident that these monuments are amongst the most authentic witnesses that can be produced.

The celebrated Mr. Addison, too, wrote an express treatise on this important use of ancient medals. By the aid of medals M. Vaillant has composed his judicious history of the kings of Syria, from the time of Alexander the Great to that of Pompey: they have been, moreover, of the greatest service in elucidating all ancient history, especially that of the Romans; and even sometimes that of the middle age. Their use is more fully treated under the article MEDALS. What we here say of medals, is to be understood equally, in its full force, of ancient inscriptions, and of other similar authentic monuments of antiquity.

SECT V. OF THE UNCERTAINTY OF ANCIENT CHRONOLOGY.

We have adverted to this subject already, and while every reader of discernment will allow that these four foundations of chronology afford clear lights, and are excellent guides to conduct us through the thick darkness of antiquity, he will soon find that they are not infallible guides, nor the proofs that they afford mathematical demonstrations. In fact, with regard to history in general, and ancient history in particular, something must be always left to conjecture and historic faith. We must not therefore pass over in silence those objections, which authors of the greatest reputation have made against the certainty of chronology.

1. The prodigious difference there is between the Septuagint Bible and the Vulgate, in point of chronology, occasions an embarrassment, which is the more difficult to avoid, as we cannot positively say on which side the error lies. The Greek Bible counts, for example, from the creation of the world to the birth of Abraham, 1500 years more than the Hebrew and Latin Bible, &c.

2. It is extremely difficult to ascertain the years of the Judges of the Jewish nation, in the Bible, or the succession of the kings of Judah and Israel. The Scripture never marks if the years are current or complete. We cannot suppose that a patriarch, judge, or king, lived exactly sixty, ninety, 100, or 969 years, without any odd months or days.

3. The different names that the Assyrians, Egyptians, Persians, and Greeks, have given to the same prince, have also contributed not a little to embarrass all ancient chronology. Three or four princes of Persia have borne the name of Assuerus, or Ahasuerus, though they had also other names. If we did not know that Nabuchodnosor, Nabucodrosor, Nebuchadnezzar, and Nabucolassar, were names of the same man, we should scarcely believe it. Sargon is Sennacherib; Ozias is Azarais; Sedecias is Mattanias; Joachas is also called Sellum; Asaraddon, Esarhaddon or Asarhaddon, is called Asenaphar by the Cuthæans; and by an oddity, of which we do not know the origin, Sardanapalus is called by the Greeks Tenos Concoleros.

4. There remain to us but few monuments of the first monarchs of the world. Numberless books have been lost, and many of those which have come down to us are mutilated or altered by transcribers. The Greeks began to write very late. Herodotus, their first historian, was of a credulous disposition, and believed all the fables that were related by the Egyptian priests. The Greeks were in general vain, partial, and held no nation in esteem but their own. The Romans were still more infatuated with notions of their own merit and grandeur; and their historians were as unjust as their senate towards other nations, many of whom were far more respectable.

5. The eras, the years, the periods and epochs, were not the same in each nation; and they, moreover, began at different seasons of the year. All this has thrown so much obscurity over chronology, that it appears to be beyond human power totally to disperse it. Christianity itself had subsisted near 1200 years, before they knew precisely how many years had passed since the birth of our Saviour. They saw clearly that the vulgar era was defective, but it was a long time before they could comprehend, that it required four whole years to make up the true period.

Dionysius the Little, who, in 532, was the first among the Christians to form the era of that grand epoch, and to count the years from that time, to make their chronology altogether Christian, erred in his calculation, and led all Europe into his error. Chronologers enumerate 132 contrary opinions of authors concerning the year in which the Messiah appeared. M. Vallemont names sixty-four, all celebrated writers. Among all these, however, there are none who reckon more than 7000, or less than 3700 years from the creation. But even this difference is enormous. The most moderate fix the birth of Christ in the 4000th year of the world. The reasons, however, on which they found their opinions are various and arbitrary.

Notwithstanding these uncertainties, Providence has so disposed all things, that there remain sufficient lights to enable us nearly to connect the series of events: for in the first 3000 years of the world, where profane history is defective, we have the chronology of the Bible to direct us; and after that period, where we find more obscurity in the chronology of the Holy Scriptures, we have on the other hand greater lights from profane authors. It is this period that begins the time which Varro calls historic: as, since the time of the Olympiads, the truth of such events as have happened shines clear in history. Chronology, therefore, draws its principal lights from history; and, in return, serves it as a guide.

In final confirmation of the elementary state of this science, we subjoin Dr. Hales' curious tables of the many discordant authorities as to the epoch of the creation. It may be unjust however to what has been accomplished for this science in modern times, and particularly by our learned author, not to add that: . .

1. He seems to have proved with the force of demonstration, that there was originally no difference between the Hebrew genealogies and those of the Greek version; 2. That the computation of Josephus was conformable to both in his time; and consequently, 3. That either the Hebrew copies, or the Greek copies, both of the Septuagint and of Josephus, have been adulterated since his time; 4. That the adulteration took place in the Hebrew copies, rather than in the Greek.

On this last point he observes, 'the Hebrew copies afforded greater facilities and opportunities of adulteration than the Greek; for in the course of the Jewish war, until the final destruction of Jerusalem, and expulsion of the Jews from Judea, in the reign of Adrian, vast numbers of the Hebrew copies must have been lost or destroyed, besides those that were taken away by the conquerors among other spoils; and the few that were left were confined, in great measure, to the Jews themselves, as the Hebrew language was not in general use, like the Greek. Whereas, of the Greek copies, even if all that were possessed by the Hellenistic Jews, not only in Palestine, but throughout the world, had been destroyed, which was far from being the case, yet the copies of the Septuagint, in the possession of the Christians everywhere, rendered any material adulteration of the Greek text, at least in so important a case as that of the genealogies, well nigh impossible.' Again, 'The temptation to adulteration was also greater in the Hebrew than in the Greek.' Ephrem Syrus, who died A.D. 378, at once explains the nature, and states the fact. 'The Jews,' says he, 'have subtracted 600 years from the generations of Adam, Seth, &c. in order that their own books might not convict them concerning the coming of Christ: he having been predicted to appear for the deliverance of mankind after 5500 years; or in the sixth millenary age.

The origin of this notion of the six millenary ages of the world, is explained by the learned Gregory, of Oxford:

'In the first verse of the first chapter of Genesis, the Hebrew letter א, Aleph, which in the Jewish arithmetic stands for 1000, is six times found. From hence, the ancient Cabbalists concluded that the world would last 6000 years. Because also God was six days about the creation, and a thousand years with him are but as one day (Ps. xc. 4; 2 Pet. iii. 8); therefore after six days, that is 6000 years duration of the world, there shall be a seventh day, or millenary sabbath of rest.'

This early tradition of the Jews was found also in the Sibylline Oracles, and in Hesiod, as we have seen; in the writings of Darius Hystaspes, the old king of the Medes, derived probably from the Magi; and in Hermes Trismegistus, among the Egyptians; and was adopted by the early Christian Fathers, Clemens, Timotheus, and Theophilus, bishop of Antioch, who observes, that 'upon the sixth day God made man, and man fell by sin; so upon the sixth day of the Chiliad (or sixth millenary of the world), our Lord Jesus Christ came into the world, and saved man by his cross and resurrection.' 'To weaken or defend the tradition itself,' says Gregory, 'I have no engagement upon me. It yieldeth me this observation, that, in the opinion of those who held it, our Saviour was to come in the flesh in the sixth millenary of the world.' 'The prevalence, therefore, of this tradition throughout the Pagan, Jewish, and Christian world, whether well founded, or otherwise,' says Dr. Hales, was a sufficient reason for the Jews to endeavour to invalidate it, by shortening their chronology.'

To archbishop Usher, bishop Lloyd, and our other able Bible chronologists, these facts could not be unknown; but, as this learned author well remarks, 'the superstitious veneration for what was called the Hebrew Verity, or supposed immaculate purity of the Masorite editions of the Hebrew text, which generally prevailed among the most eminent divines and Hebrew scholars of the last age, precluded all discussions of this nature.' But the inspection of various editions since, and the copious collations of the Hebrew text with a great number of MSS. collected from all parts of the world, by the laudable industry and extensive researches of Kennicot, De Rossi, and other learned men, have proved that the sacred classics are no more exempt from various readings than the profane.'

By the means, chiefly, of some genuine dates and numbers which still happily subsist in the work of Josephus, Dr. Hales has been enabled, he conceives, to restore the Scripture chronology to its original state; and this he has done by strictly following the analytical method of investigation, which, he asserts, is at least as applicable to chronology as to natural philosophy.

The leading elementary date, by reference to which he has adjusted the whole range of sacred and profane chronology, 'is (we quote his own words) the birth of Cyrus, B.C. 599, which led to his accession to the throne of Persia, B.C. 559; of Media, B.C. 551; and of Babylonia, B.C. 536; for from these several dates, carefully and critically ascertained and verified, the several respective chronologies of these kingdoms branched off; and from the last especially, the destruction of Solomon's temple by Nebuchadnezzar, B.C. 596, its correcter date, which led to its foundation, B.C. 1027; thence to the Exode, B.C. 1648; thence to Abraham's birth, B.C. 2153; thence to the reign of Nimrod, 2554; thence to the deluge, B.C. 3155; and thence to the creation, B.C. 5411. And this date of the creation is verified by the rectification of the systems of Josephus, and Theophilus, who was bishop of Antioch A. D. 169 and the first Christian chronologist.' By the same close and patient investigation Dr. Hales has ascertained the genealogies of the antediluvian patriarchs to have been very different from what they are represented to have been in the present Hebrew; and, though his system is doubtless not free from errors, it seems to approach so near to perfection, that we cannot but warmly recommend a full investigation of it by every critical reader of his Bible.

EPOCHS OF THE CREATION.

		B. C.
Alphonsus, king of Castile, A. D. 1252	Muller Strauchius	6984 6484
Onuphrius Panvinius		6310
Indian chronology	Gentil. Arabian records	5204 6174
Babylonian chronology	Bailly	6158
Chinese chronology	Bailly	6157
Diogenes Laertius, B. C. 222	Playfair	6138
Egyptian chronology	Bailly	6128
Diodorus Siculus, B. C. 80	Playfair	6081
Suidas, A. D. 1090	Playfair	6000
Sulpitius Severus, A. D. 420	Playfair	5469
Manetho, B. C. 304	Playfair	5877
Pezron	Playfair	5872
Lactantius. A. D. 306	Univer. History	5801
Cary	Playfair	5708
Nicephorus, A. D. 758	Univer. History	5700
Riccioli	Playfair	5634
Clemens Alexandrinus, A. D. 194	Univer. History	5624
Fasti Siculi	Univer. History	5698
Vossius	Univer. History	5598
Septuagint computation	Abulfaragi	5586
Septuagint Alexandrine, used by Constantinople, Abyssinian, and Russian courches	Scaliger	5508
Persian chronology	Bailly	5507
Cedrenus, A. D. 1060	Chevreau Strauchius	5506 5493
Maximus Martyr, A. D. 196		5501
Julius Africanus, A. D. 218 Syncellus, A. D. 792 Eutychius, A. D. 937	Univer. History	5500
Chronicle of Axum in Abyssinia	Bruce	5500
Q. Julius Hilarion	Playfair	5497
Demetrius, B. C. 220	Hales Jackson	5487 5444
Eupolemus, B. C. 174	Jackson	5443
Jackson		5426
Josephus, A. D. 94	Playfair Jackson Hales Univer. History	5555 5481 5402 4698
Theophilus B. of Antioch, A D. 168	Gregory Petavius Kennicott Abulfaragi	5626 5515 5507 5409
Hales		5411
Indian computation	Megasthenes	5369
Augustin, A. D. 354	Genebrard	5351
Talmudists	Petrus Allinceus.	5344
Isidore, A. D. 412	Univer. History	5336
Albumazer, A. D. 540	Univer. History	5328
Rabanus Maurus, A. D. 778	Univer. History	5296
Septuagint Vatican		5270
Isidorus Hispalensis, A. D. 304	Strauchius	5210
Paulus de Fossembrona	Univer. History	5201
Eusebius, A. D. 315	Univer. History	5200
Martyrologium Romanum	Playfair	
Bede, A. D. 673	Strauchius	5199
Orosius, A. D. 430	Univer. History	5198
Philo Judæus, A. D. 40 Sigibertus, A. D. 1100	Playfair	5196

		B. C.
Epiphanius, A. D. 368	Univer. History	[illegible]
Justin Martyr, A. D. 140 Metrodorus, B. C. 170	Playfair	5000
Ado, B. of Vienne, A. D. 860	Playfair.	[illegible]
Origen, A. D. 230		[illegible]
Fresnoy	Univer. History	[illegible]
Aurelius Cassiodorius, A. D. 463	Playfair	[illegible]
Samaritan computation	Scaliger	4427
Seder Olam Sutha	Ganz	[illegible]
Odeaton Astrologus	Playfair	[illegible]
Samaritan Text	Univer. History	[illegible]
Hebrew Text		[illegible]
Jewish computation	Abulfaragi	[illegible]
Marianus Scotus, A. D. 1080	Univer. History	[illegible]
Jewish computation	Riccioli	[illegible]
Laurentius Codomannus	Univer. History Chevreau	4141 [illegible]
Nicholas Vignier		[illegible]
Thomas Lidyat		[illegible]
Ribera	Univer. History	[illegible]
Genebrard	Univer. History	[illegible]
Arnold de Pontac	Univer. History	[illegible]
Chinese Jews Michael Mæstlinus	Brotier Univer. History	[illegible]
Ricciolus	Univer. History	[illegible]
Maimonides Blancanus	Univer. History	4058
Salianus	Strauchius	4057
Labbæus	Chevreau	4052
Spondanus Torniellus		4051
Langius	Strauchius Chevreau	4041 4040
Pererius	Playfair	4021
Rheinhold		4020
Playfair Walker		4008
Kennedy, Bedford, Ferguson		4007
Capellus		4005
Usher, Lloyd, Simpson, Spanheim, Calmet, Le Chais, Blair, &c. and English Bible		4004
Hevelius Marsham		4000
Kepler	Playfair	3993
Petavius		3984
Bibliander	Univer. History	3980
Krentzeim	Univer. History	3971
Bucholtzer, Matthias Cluverius, Boxhornius, Jansenius	Strauchius Chevreau	3970
Bullinger		3969
Bunting, Bardius	Playfair	3967
Longomontanus	Univer. History	3966
Melancthon	Playfair	3964
Reynoldus	Univer. History	3963
Luther		3961
Lightfoot		3960
Salmeron, Picus Mirandula	Chevreau	3959
Lamberg	Strauchius	3958
Herwart	Univer. History	3955
Cornelius a Lapide	Univer. History	3951
Scaliger, J. S.		3950
Strauchius		3949
Johannes Micrelius	Univer. History	3948
Helvicus		3947
John Carrion	Playfair	3944
Jerome, A. D. 392	Univer. History	3941
Gerard Mercator, Beroaldus	Playfair	3928
James Gordon	Playfair	3880

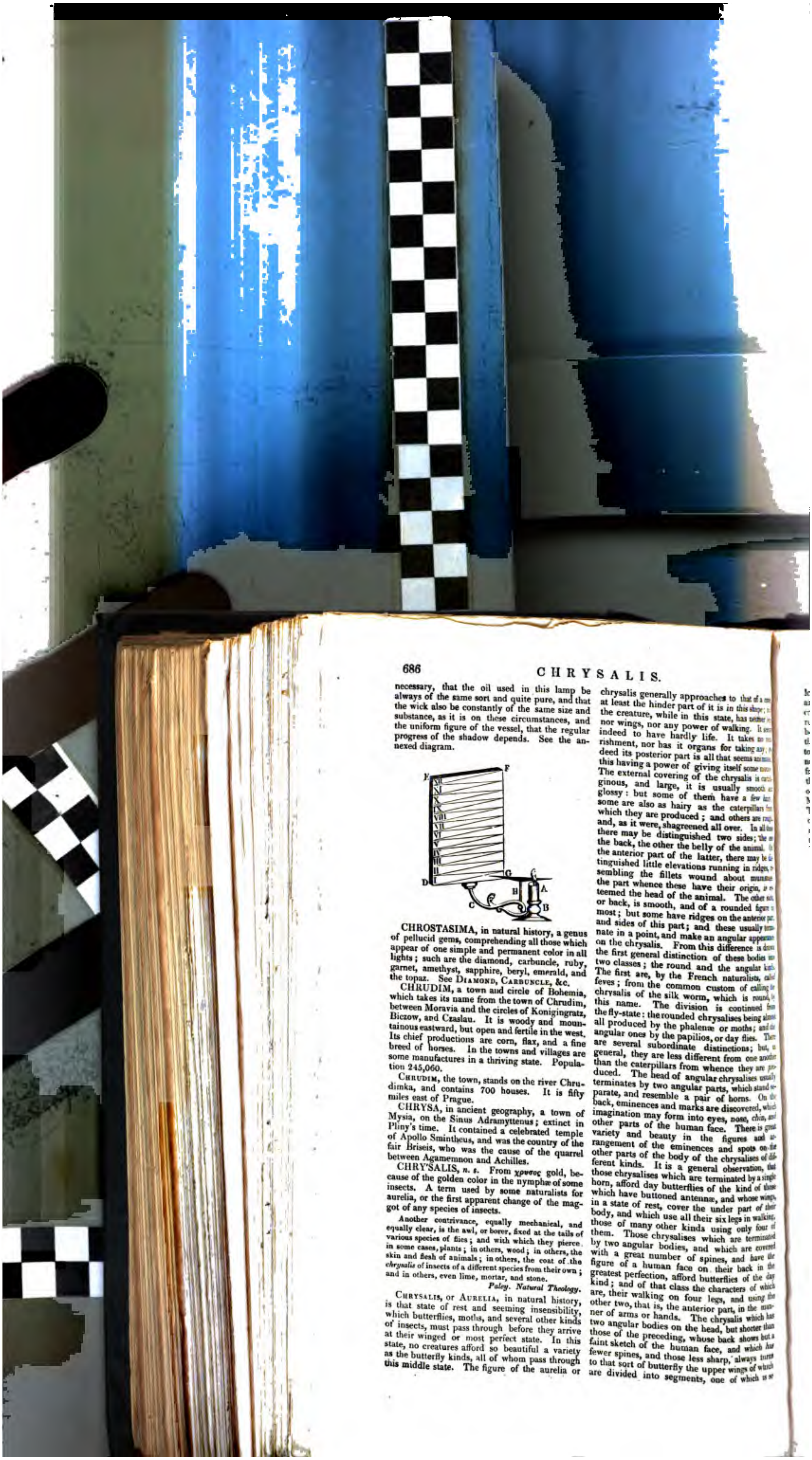
		B. C.
Arias Montanus	Univer. History	3849
Helvigius	Univer. History	3836
Some Talmudists	Univer. History	3784
David Ganz	. .	3761
Vulgar Jewish computation	Strauchius	3760
Rabbi Gersom	Playfair	3754
Seder Olam Rabba, or 'Great Chronicle of the World,' A. D. 130	Ganz	3751
Rabbi Habsom	Univer. History	3740
Rabbi Nosen	Univer. History	3734
Rabbi Hillel, A. D. 358	. .	3700
Rabbi Zacuth	Univer. History	3671
Rabbi Lipman	Univer. History	3616

CHRONO'METER, *n. s.* From χρονος and μετρον. An instrument for the exact mensuration of time.

According to observation made with a pendulum *chronometer*, a bullet, at its first discharge, flies five hundred and ten yards in five half seconds.
Derham.

CHRONOMETERS are, strictly speaking, only a more accurate species of watches: but they are generally much larger, and, being designed to measure time with great accuracy, are supplied with various correctives in respect to the balances, escapements, &c. They are usually, for nautical purposes, hung in gimbols placed in boxes of six or eight inches square. The invention and improvement of chronometers have had various claimants; but the ingenuity and researches of the French artists, there can be no question, have given them their modern importance and accuracy. Peter Leroy first constructed fluid thermometers on the balance, and afterwards invented the present expansion balance of brass and steel, for correcting the effects of heat and cold, to which, with the isochronism of the vibrations of the balance produced by the proper adjustment of the pendulum spring, chronometers principally owe their present perfection. Men of war generally have one allowed them by government. The rate of a chronometer is that number of seconds which its hands indicate more or less than twenty-four hours in a mean day, and is called plus when more is indicated than twenty-four hours in a day, and minus when less. Suppose, for example, the chronometer when set to the time at Greenwich, instead of going at mean time, had been ascertained to have a gaining rate of +7″, 5 a day, and that it was forty days on its passage to Petersburgh; it is evident that, on its arrival, it would have been forty times seven seconds and a half, or five minutes, too fast at Greenwich, and must, therefore, have five minutes deducted from the time it indicated to give that at Greenwich; and so much added if the rate had been losing. Public observatories having a good regulator furnish the best means of finding the rate of a chronometer on a voyage; but it may be sufficiently found for practical purposes by ascertaining the error on its arrival at any port, and again on departure; the encreased error, divided by the number of days that have elapsed between the two observations, giving the daily error or rate. The connexion between time and longitude is obvious, and that the true instant of noon must be earlier at each place, at which we should arrive, travelling eastward, until those differences of time had amounted to a whole day, in the entire rotation of the earth. Allowing, therefore, proportionally for every smaller part, we may determine what is the difference of longitude between them. Suppose therefore, for example, a chronometer, set to the time at Greenwich, were to be carried to Petersburgh, it would indicate time two hours later than Petersburgh clocks, that is to say, it would show when it was noon at Greenwich, instead of when it was noon at Petersburgh. The obvious conclusion is, that the sun arrives at the meridian of Petersburgh earlier, and, consequently, that this town lies more easterly than Greenwich; and, as two hours are in proportion to twenty-four, so is 360°, the earth's circumference, to 30°, the longitude of Petersburgh, reckoned from Greenwich. This is supposing the chronometer to have gone at mean time, or, in other words, that its hands have passed over twenty-four hours on the dial plate from mean noon on one day to mean noon on the next. It is then said to go at mean time, or to have no rate. But this is not necessary to its use; for, provided its rate or daily error be known, the time at Greenwich, or the first meridian, may always be found by applying that rate to the time indicated. See WATCHES.

CHRONOMETER, LAMP, an ingenious contrivance to show the hour during the night. It consists of a chamber lamp A, which is a cylindrical vessel about three inches high, and one inch diameter, placed in the stand B. The inside must be everywhere exactly of the same diameter. To the stand, B, is fixed the handle, C, which supports the frame D E F G, about twelve inches high, and four wide. This frame is covered with oiled paper, and divided into twelve equal parts by horizontal lines; at the end of which are written the numbers for the hours, from one to twelve, and between the horizontal lines are diagonals that are divided into halves, quarters, &c. On the handle C, and close to the glass, is fixed the style or gnomon H. Now, as the distance of the style from the flame of the lamp is only half an inch, if the distance of the frame from the style is only six inches, then, while the float that contains the light descends, by the decrease of the oil, one inch, the shadow of the style on the frame will ascend twelve inches, that is, its whole length, and show by its progression the regular increase of the hours, with their several divisions. It is absolutely



necessary, that the oil used in this lamp be always of the same sort and quite pure, and that the wick also be constantly of the same size and substance, as it is on these circumstances, and the uniform figure of the vessel, that the regular progress of the shadow depends. See the annexed diagram.

E
F
XII
XI
X
IX
VIII
VII
VI
V
IV
III
II
I
G
D
H
A
C
B

CHROSTASIMA, in natural history, a genus of pellucid gems, comprehending all those which appear of one simple and permanent color in all lights; such are the diamond, carbuncle, ruby, garnet, amethyst, sapphire, beryl, emerald, and the topaz. See DIAMOND, CARBUNCLE, &c.

CHRUDIM, a town and circle of Bohemia, which takes its name from the town of Chrudim, between Moravia and the circles of Konigingratz, Biczow, and Czaslau. It is woody and mountainous eastward, but open and fertile in the west. Its chief productions are corn, flax, and a fine breed of horses. In the towns and villages are some manufactures in a thriving state. Population 245,060.

CHRUDIM, the town, stands on the river Chrudimka, and contains 700 houses. It is fifty miles east of Prague.

CHRYSA, in ancient geography, a town of Mysia, on the Sinus Adramyttenus; extinct in Pliny's time. It contained a celebrated temple of Apollo Smintheus, and was the country of the fair Briseis, who was the cause of the quarrel between Agamemnon and Achilles.

CHRY'SALIS, *n. s.* From χρυσος gold, because of the golden color in the nymphæ of some insects. A term used by some naturalists for aurelia, or the first apparent change of the maggot of any species of insects.

> Another contrivance, equally mechanical, and equally clear, is the awl, or borer, fixed at the tails of various species of flies; and with which they pierce in some cases, plants; in others, wood; in others, the skin and flesh of animals; in others, the coat of the *chrysalis* of insects of a different species from their own; and in others, even lime, mortar, and stone.
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> *Paley. Natural Theology.*

CHRYSALIS, or AURELIA, in natural history, is that state of rest and seeming insensibility, which butterflies, moths, and several other kinds of insects, must pass through before they arrive at their winged or most perfect state. In this state, no creatures afford so beautiful a variety as the butterfly kinds, all of whom pass through this middle state. The figure of the aurelia or chrysalis generally approaches to that of a cone; at least the hinder part of it is in this shape; and the creature, while in this state, has neither legs nor wings, nor any power of walking. It seems indeed to have hardly life. It takes no nourishment, nor has it organs for taking any; indeed its posterior part is all that seems animated, this having a power of giving itself some motion. The external covering of the chrysalis is cartilaginous, and large, it is usually smooth and glossy: but some of them have a few hairs; some are also as hairy as the caterpillars from which they are produced; and others are rough, and, as it were, shagreened all over. In all these there may be distinguished two sides; the one the back, the other the belly of the animal. On the anterior part of the latter, there may be distinguished little elevations running in ridges, resembling the fillets wound about mummies: the part whence these have their origin, is esteemed the head of the animal. The other side, or back, is smooth, and of a rounded figure in most; but some have ridges on the anterior part and sides of this part; and these usually terminate in a point, and make an angular appearance on the chrysalis. From this difference is drawn the first general distinction of these bodies into two classes; the round and the angular kinds. The first are, by the French naturalists, called feves; from the common custom of calling the chrysalis of the silk worm, which is round, by this name. The division is continued from the fly-state: the rounded chrysalises being almost all produced by the phalenæ or moths; and the angular ones by the papilios, or day flies. There are several subordinate distinctions; but, in general, they are less different from one another than the caterpillars from whence they are produced. The head of angular chrysalises usually terminates by two angular parts, which stand separate, and resemble a pair of horns. On the back, eminences and marks are discovered, which imagination may form into eyes, nose, chin, and other parts of the human face. There is great variety and beauty in the figures and arrangement of the eminences and spots on the other parts of the body of the chrysalises of different kinds. It is a general observation, that those chrysalises which are terminated by a single horn, afford day butterflies of the kind of those which have buttoned antennæ, and whose wings, in a state of rest, cover the under part of their body, and which use all their six legs in walking, those of many other kinds using only four of them. Those chrysalises which are terminated by two angular bodies, and which are covered with a great number of spines, and have the figure of a human face on their back in the greatest perfection, afford butterflies of the day kind; and of that class the characters of which are, their walking on four legs, and using the other two, that is, the anterior part, in the manner of arms or hands. The chrysalis which has two angular bodies on the head, but shorter than those of the preceding, whose back shows but a faint sketch of the human face, and which has fewer spines, and those less sharp, always turns to that sort of butterfly the upper wings of which are divided into segments, one of which is so long as to represent a tail, and whose under wings are folded over the upper part of the back. A careful observation will establish many more rules of this kind, which are not so perfect as to be free from exceptions; yet are of great use, as they teach us in general what sort of fly we are to expect from the chrysalis, of which we know not the caterpillar, and therefore can only judge from appearance. Among the angular chrysalises there are some whose color seems as worthy our observation as the shapes of the others. Many of them appear superbly clothed in gold. These elegant species first obtained the name of chrysalis and aurelia, derived from Greek and Latin words, signifying gold; and from these all other bodies of the same kind came to be called by the same name. As some kinds are thus gilded all over, so others are more sparingly ornamented with this gay appearance, having only a few spots of it in different places on their back and belly. These obvious marks, however, are not to be depended upon as certain characters of distinction: for accidents in the formation of the chrysalis may alter them; and those which naturally would have been gilded all over, may be sometimes only so in part; and either these or the others may, by accident, be so formed, as to show nothing of this kind at all, but be only of a dusky brown. Those, however, which have neither silver nor gold to recommend them to the eye, do not want other colors, and those beautifully variegated. Some of them are all over of an elegant green, as is the chrysalis of the fennel caterpillar; others of an elegant yellow; and some of a bright greenish tinge, variegated with spots of a shining black. We have a very beautiful instance of this last kind in the chrysalis of the elegant cabbage caterpillar. The general color of the chrysalis of the common butterflies, however, is brown. Some are also of a fine deep black; and of these many are so smooth and glossy, that they are equal to the finest Indian japan. The common caterpillar of the fig-tree gives an instance of one of these most beautiful glossy ones; the caterpillar of the vine affords another of these fine black chrysalises. The round chrysalises have also their marks as regular as the angular. The greater number of them have the hinder part of their bodies conical; but the upper end, which ought to be its circular plane base, is usually bent and rounded into a sort of knee: this is called the head of the chrysalis; but there are also some of this kind the head of which is terminated by a nearly plane surface: some of the creeping ten-legged caterpillars give chrysalises of this kind, having each two eminences that seem to bring them towards the angular kind. The rounded chrysalises do not afford any thing of that variety of coloring so remarkable in the angular ones; they are usually of a dusky yellow, in different shades, and are often variously spotted with black; but these as well as all other chrysalises, before they arrive at their fixed color, pass through several other temporary ones. The green rough caterpillar of the cabbage has a chrysalis which is green at first; and from that gradually goes through all the shades of green to a faint yellow, which is its lasting color; and one of the oak caterpillars yields a chrysalis beautifully spotted with red at its first appearance; but these spots change to brown for their fixed color: the third day from their formation usually fixes their lasting colors; and if they are observed to turn black in any part after this time, it is a sign they are dead or dying.

The several species of insects, as flies, spiders, and ants, do not differ more evidently from one another in regard to appearance, than do a caterpillar, its chrysalis, and a butterfly produced from it; yet it is certain, that these are all the product of the same individual egg; and nothing is more certain, than that the creature which was for a while a caterpillar, is, after a certain time, a chrysalis, and then a butterfly. These great changes produced in so sudden a manner, seem like the metamorphoses recorded in the fables of the ancients; and indeed it is not improbable that those fables first took their origin from such changes. The parts being distinguishable in the chrysalis, we easily find the difference of the species of the fly that is to proceed from it. The naked eye shows whether it be one of those that have, or of those that have not, a trunk; and the assistance of a microscope shows the antennæ so distinctly, that we are able to discern whether it belong to the day or night class; and often what genus, if not the very species: nay, in the plumose horned kinds, we may see, by the antennæ, whether a male or female phalæna is to be produced from the chrysalis; the horns of the female being in this state evidently narrower, and appearing less elevated about the common surface of the body, than those of the male. All these parts, however, though seen very distinctly, are laid close to one another, and seem to form only one mass; each is covered with its own peculiar membrane in this state, and all are surrounded by a common one; and it is only through these that we see them: or rather we see on these the figures of all the parts moulded within, and therefore it requires attention to distinguish them. The chrysalis is soft when first produced, and is wetted on the front with a viscous liquor; its skin, though very tender at the first, dries and hardens by degrees: but this viscous liquor, which surrounds the wings, legs, &c. hardens almost immediately; and in consequence fastens all those limbs, &c. into a mass, which were before loose from one another: this liquor, as it hardens, loses its transparence, and becomes brown; so that it is only while it is yet moist that these points are to be seen distinctly. It is evident from the whole, that the chrysalis is no other than a butterfly, the parts of which are hid under certain membranes which fasten them together; and when the limbs are arrived at their due strength, they become able to break through these membranes, and then expand and arrange themselves in their proper order. The first metamorphosis, therefore, differs nothing from the second, except that the butterfly comes from the body of the caterpillar in a weak state, with limbs unable to perform their offices, whereas it comes from the chrysalis perfect. M. Reaumur has given us many curious observations on the structure and uses of the several coverings that attend the caterpillar kind in this state. The creatures in general remain wholly immoveable, and seem to have no business in it but a patient attendance on the time when they are to become butterflies; and this is a change that can happen to them, only as their parts, before extremely soft and weak, are capable of hardening and becoming firm by degrees, by the transpiration of that abundant humidity which before kept them soft: and this is proved by an experiment of M. Reaumur, who, enclosing some chrysalises in a glass tube, found, after some time, a small quantity of water at the bottom of it; which could have come there no other way, but from the body of the enclosed animal. This transpiration depends greatly on the temperature of the air; it is increased by heat, and diminished by cold; but it has also its peculiarities in regard to the several species of butterfly to which the chrysalis belongs. According to these observations, the time of the duration of the animal in the chrysalis state must be, in different species, very different; and there is indeed this wide difference in the extremes, that some species remain only eight days in this state, and others eight months. We know that the caterpillar changes its skin four or five times during its living in that state; and that all these skins are at first produced with it from the egg, lying closely over one another. It parts with, or throws off, all these one by one, as the butterfly, which is the real animal, all this time within, grows more and more perfect in the several first changes. When it throws off one, it appears in another skin exactly of the same form; but at its final change from this appearance, that is, when it throws off the last skin, as the creature within is now arrived at such a degree of perfection as to need no farther taking of nourishment, there is no farther need of teeth, or any of the other parts of a caterpillar. The creature, in this last change, proceeds in the same manner as in all the former, the skins opening at the back, and the animal making its way out in this shape. If the caterpillar, when about to throw off this last skin, be thrown into spirits of wine, and left there for a few days, the membranes within will harden, and the creature may be afterwards carefully opened, and the chrysalis taken out, in which the form of the tender butterfly may be traced in all its lineaments, and its eyes, legs, &c. evidently seen. If one of these animals be thrown into spirits of wine, or into vinegar, even some days before that time, and left for the flesh to harden, it may afterwards be dissected, and all the lineaments of the butterfly traced out in it; the wings, legs, antennæ, &c. being as evident as in the chrysalis. It is plain from this, that the change of the caterpillar into chrysalis is not the work of a moment; but is carrying on for a long time before, even from the very hatching of the creature from the egg. The parts of the butterfly, however, are not disposed exactly in the same manner while in the body of the caterpillar, as when left naked in the form of the chrysalis: for the wings are proportionally longer and narrower, being wound up into the form of a cord; and the antennæ are rolled up on the head; the trunk is also twisted up and laid upon the head, but this in a very different manner from what it is in the perfect animal, and very different from that in which it lies within the chrysalis; so the first formation of the butterfly in the caterpillar, by time arrives at a proper change of the disposition of its parts, in order to its being a chrysalis. The very eggs, hereafter to be deposited by the butterfly, are also to be found not only in the chrysalis, but in the caterpillar itself, arranged in their natural regular order. They are in this state very small and transparent; but after the change into the chrysalis, they have their proper color. As soon as the several parts of the butterfly, therefore, are arrived at a state proper for being exposed to the air, they are thrown out from the body of the caterpillar surrounded only with their membranes; and, as soon as they arrive at a proper degree of strength and solidity, they labor to break through these thinner coverings, and to appear in their proper and natural form. The time of their duration in the state of chrysalis is very uncertain, some remaining in it only a few days, others several months, and some almost a year in appearance. But there is a fallacy in this that many are not aware of. It is natural to think, that as soon as the creature has enclosed itself in its shell, be that of what matter it will, it undergoes its change into the chrysalis state. And this is the case with the generality: yet there are some which are eight or nine months in the shell before they become chrysalises; so that their duration in the real chrysalis state is much shorter than it naturally appears to be. M. Reaumur carefully watched the articulated caterpillar of the oak in its several changes, and particularly from its chrysalis, which is of this last kind, into the fly; and has given an account of the method of this as an instance of the general course of nature in these operations. The membranes which envelope the creature in this chrysalis state are at first tough and firm, and immediately touch the several parts of the enclosed animal; but by degrees, as these parts harden they become covered, some with hairs and others with scales. These, as they continue to grow, by degrees fall off the several particular membranes which cover the parts on which they are placed to a greater distance, and gradually loosen then from the limbs. This is one reason of those membranes drying and becoming brittle. The middle of the upper part of the corselet is usually marked with a line running in a longitudinal direction, and this part is always more elevated than the rest, even in the conic kinds, which are no otherwise angular. This line is in some very bold and plain; in others, it is so faint as not to be distinguishable without glasses; but it is always in the midst of that line, that the shell begins to open. The motion of the head of the butterfly backwards first occasions this crack; and a few repetitions of the same motion open it the whole length. The clearing itself, however, entirely, is a work of more time in this case, than is the passing of the chrysalis out of the body of the caterpillar. In that case there is a crack sufficiently large in the skin of the back, and the whole chrysalis being loose comes out at once. But in this case every particular limb, and part of the body, has its separate case; and these are almost inconceivably thin and tender, yet it is necessary that every part be drawn out of them before it appear naked to the open air. As soon as all this is effected, and the animal is at liberty, it either continues some time upon the remains of its covering, or creeps a little way from it, and there rests. The wings are principally admired in this creature. These are at this time so closely folded up, and placed in so narrow a compass, that the creature seems to have none: but they by degrees expand and unfold themselves; and finally, in a quarter of an hour, or half an hour at the utmost, they appear of their full size, and in all their beauty. The manner of this sudden unfolding of the wings is this: the small figure they make when the creature first comes out of its membranes, does not prevent the observing that they are at that time considerably thick. This is owing to its being a large wing folded up in the nicest manner, and with folds so arranged as to be by no means sensible to the eye, for the wing is never seen to unfold; but, when observed in the most accurate manner, seems to grow under the eye to this extent. When the creature is first produced from the shell, it is everywhere moist and tender; even its wings have no strength or stiffness till they expand themselves; but they then dry by degrees, and, with the other parts, become rigid and firm. But if any accident prevents the wings from expanding at their proper time, that is, as soon as the creature is out of the shell, they never afterwards are able to extend themselves; but the creature continues to wear them in their contracted and wholly useless state; and very often, when the wings are in part extended before such an accident happens, it stops them in a partial extension, and the creature must be contented to pass its whole life with them in that manner. M. Reaumur has proved that heat and cold make great differences in the time of hatching the butterfly from its chrysalis state: and this he particularly tried with great accuracy and attention, by putting them in vessels in warm rooms, and in ice houses: and it seemed wholly owing to the hastening or retarding the evaporation of the abundant humidity of the animal in the chrysalis state, that it sooner or later appeared in the butterfly form. He varnished over some chrysalises, to try what would be the effect of thus wholly preventing their transpiration; and the consequence was, that the butterflies came forth from these two months later than their natural time. Thus was the duration of the animal in this state lengthened; that is, its existence was lengthened; but without any advantage to the creature, since it was in the time of its state of inaction, and probably of insensibility. M. Reaumur deduces a hint from this, respecting the preservation of eggs, that seems to be of some use. See EGGS. The third state of these insects, that in which they are winged, is always very short, and seems destined for no other action but the propagation of the species. See PAPILIO.

CHRYSANTHEMUM, corn marigold; in botany, a genus of the polygamia superflua order, and syngenesia class of plants; natural order forty-ninth, compositæ. Receptacle naked; pappus marginated, or consisting only of a border; CAL. hemispherical and imbricated, with the marginal scales membranaceous. There are twenty-six species, of which the following are the most remarkable:—1. C. coronarium, long cultivated in the gardens on account of the beauty of its flowers. It grows to the height of three feet, with a single upright stalk divided into numerous branches, garnished with pinnated leaves, and crowned with elegant compound flowers of different colors and properties. The varieties are, single and double flowers of a cream color; yellow; yellow and white; brimstone-colored; fistular, or quilled; or those with finely jagged leaves, and flowers of all the above colors and properties. All the varieties begin flowering in July; the flowers are exceedingly numerous, and exhibit a constant succession of full bloom till November; and both single and double are succeeded by abundance of seed. This species may be raised in abundance from seed, either in a hot-bed, or warm border, in the spring, for transplanting; also by cuttings and slips of their branches in autumn. 2. C. frutescens, a native of the Canary Islands. It rises with a shrubby stalk near two feet, dividing into many branches, which are garnished with pretty thick succulent leaves, of a grayish color, cut into many segments. The flowers come out from the wings of the leaves, growing upon naked foot-stalks singly, which greatly resemble those of chamomile. There is a succession of flowers on the same plant for the greatest part of the year, for which it is chiefly esteemed. This plant will perfect seeds in Britain, when the seasons are favorable. 3. C. serotinum is a native of North America. The roots of this plant creep far under the surface, and send up strong stalks more than four feet high, garnished with long sawed leaves ending in points. These stalks divide upward into many smaller; each being terminated by a large, white, radiated flower, which appears in the end of August or September. This species multiplies fast by its creeping roots, and will thrive in any soil or situation.

CHRYSANTHEMUM, BASTARD. See SILPHIUM.

CHRYSANTHEMUM, HARD-SEEDED. See OSTEOSPERMUM.

CHRYSES, in fabulous history, the priest of Apollo, and father of Astynome, hence called Chryseis. When Lyrnessus was taken, and the spoils divided among the conquerors, Chryses fell to the share of Agamemnon. Chryses upon this went to the Grecian camp to solicit his daughter's restoration; and when his prayers were fruitless, he implored the aid of Apollo, who visited the Greeks with a plague, and compelled them to restore Chryseis.

CHRYSIPPUS, a Stoic philosopher, born at Solis, in Sicilia, was a disciple of Cleanthus, Zeno's successor. He wrote many works, several of which related to logic. None of the philosophers spoke in stronger terms of the fatal necessity of everything, nor more pompously of the liberty of man, than this Stoic. So considerable was he among them that it became a proverb, that if it had not been for Chrysippus, the porch had never been: yet the Stoics complained, as Cicero relates, that he had collected so many arguments in favor of the sceptical hypothesis, that he could not answer them himself and thus had furnished Carneades, their antagonist, with weapons against them. There is an apophthegm of this philosopher preserved, which does him honor. Being told that some persons spoke ill of him, 'It is no matter,' said he, 'I will live so that they shall not be believed.'

CHRYSIS, the golden-fly, in natural history; a genus of insects belonging to the order of hymenoptera. The mouth is armed with jaws, but has no proboscis; the antennæ are filiform, bent, and consist of twelve articulations; the abdomen is arched, with a scale on each side; the anus is dentated, and armed with a sting; the wings lie plain; and the body appears as if gilt. There are above thirty species, of which the most remarkable is the C. ignita, or flaming chrysis, beautified with the most resplendent colors. The fore part of its head is green and gold, and the hinder of a beautiful azure. The thorax is likewise azured over, with a mixture of green, and terminated at its extremity with sharp points on both sides. The abdomen is green and gold before, and of a coppery red behind, imitating molten copper highly polished. The whole insect is dotted on its upper part, which gives it a great resplendency of color. The antennæ are black, and legs green, intermixed with gold. This species dwells in holes of walls between the stones, and in the mortar that cements them. It is often seen issuing from such holes, where it nestles and performs its work. The larvæ, which resemble those of the wasp, likewise inhabit the holes of decayed walls.

CHRYSITRIX, in botany, a genus of the diœcia order, and polygamia class of plants: HERM. glume two-valved: COR. from chaff numerous and bristly; many stamina, one within each chaff: PISTIL, one. Male no pistillum. Species one, native of the Cape.

CHRYSOBALANUS, cocoa plum in botany, a genus of the monogynia order, and icosandria class of plants: natural order thirty-sixth, pomaceæ: CAL. quinquefid, petals five; plum kernel five-furrowed and five-valved. There is only one species, viz. the C. icaco, which is a native of the Bahama Islands and many other parts of America, but commonly grows near the sea. It rises with a shrubby stalk eight or nine feet high, sending out several side branches, which are covered with a dark brown bark. The flowers are white, and are succeeded by plums like damsons; some blue, some red, and others yellow. The stone is shaped like a pear, and has five longitudinal furrows. The plums have a sweet luscious taste, and are brought to the tables of the inhabitants, by whom they are much esteemed.

CHRYSOCOMA, goldy-locks, in botany, a genus of the polygamia æqualis order, and syngenesia class of plants; natural order forty-ninth, compositæ. Receptacle naked; pappus simple: CAL. hemispherical and imbricated; STYLE hardly longer than the florets. There are fifteen species, the most remarkable of which are, the linosyris, the coma aurea, and the cornua. These are herbaceous flowering perennials, growing from one to two feet high, ornamented with narrow leaves, and compound floscular flowers of a yellow color. They are easily propagated by dividing the roots or by cuttings; but the last two require to be sheltered in the green-house in winter.

CHRYSOGONUM, in botany, a genus of the polygamia necessaria order, and syngenesia class of plants; natural order forty-ninth, compositæ. Receptacle paleaceous; pappus monophyllous, and tridented: CAL. pentaphyllous; the seeds wrapped up each in a tetrephyllous calycle. Species one, a native of Virginia.

CHRY'SOLITE, *n. s.* Χρυσος gold, and λιθος a stone. A precious stone of a dusky green, with a cast of yellow.

> Such another world,
> Of one intire and perfect *chrysolite*,
> I'd not have sold her for. *Shakspeare.*
>
> If metal, part seemed silver, part silver clear,
> If stone, carbuncle most, or *chrysolite*.
> *Milton's Paradise Lost.*

CHRYSOLITES, or yellowish-green topazes, are found in the East Indies, Brasil, Bohemia, Saxony, Spain, in the departments of Cantal, Puy-de-dome and Allier, in France, and in Derbyshire in England. Some are also found with volcanic lavas, as in the Vivarais, where some large lumps have been seen of twenty or thirty pounds weight; but it is remarkable, that some of these chrysolites are partly decomposed into an argillaceous substance. All chrysolites, however, are far from being of the same kind. The oriental is the same with the peredot, and differs only by its green hue from the sapphires, topazes, and rubies of the same denomination. This becomes electric by being rubbed; has a prismatic form of six, or sometimes of five striated faces; and does not lose its color or transparency in the fire, which the common chrysolite often does; becoming either opaque, or melting entirely in a strong heat. The instant it melts, it emits a phosphoric light like the basis of alum and gypseous spar: with borax it produces a thin colorless glass. Its specific gravity is between 3·600 and 3·700; according to Brisson it is 2·7821, or 2·6923; and that of the Spanish chrysolite 3·0989. The substance of this precious stone is lamellated in the direction of the axis of its primitive form: but the chrysolite from Saxony is foliated in a perpendicular direction to the same axis. The chrysolite of the ancients was the same gem which is now called topaz, and the name of itself indicates that it ought to be so.

CHRYSOLITES, PASTE, are a kind of glass made in imitation of chrysolites, by mixing two ounces of prepared crystal with ten ounces of red-lead, adding twelve grains of crocus martis made with vinegar; and then baking the whole for twenty-four hours, or longer, in a well luted cucurbit.

CHRYSOMELA, in zoology, a genus of insects belonging to the order of coleoptera. The antennæ are shaped like bracelets, and thicker on the outside, feelers six, thorax marginate, the elytra immarginate. There are no less than 340 species, principally distinguished by differences in their color. They are to be found almost everywhere, in woods, gardens, &c. Their progressive motion is slow; and some when caught, emit an oily liquor of a disagreeable smell. The glittering colors with which several species of chrysomelæ are adorned, and which seem to exhibit the brilliancy of gold and copper, have occasioned their bearing that pompous name. The larvæ of these insects have in general an oval body, rather oblong and soft; on the fore part of which are situated six feet, which are scaly, as is also the head. They prey upon the substance of leaves, rejecting the fibrous part. Those of the leaping chrysomelæ infest the cotyledons and tender leaves of plants. Of this genus is that very pernicious insect called by the country people the turnip fly, which infests turnips and many crops in the garden, destroying often whole fields while in their seedling leaves. In very hot summers they abound to an amazing degree, and, in a field or garden, make a pattering like rain, by jumping on the leaves of the turnips or cabbages.

CHRYSOPAGION, in natural history, a name by which some of the middle age writers have called the gem described by Pliny under the name of the chrysolampis. Salmasius is of opinion that it was only a foul kind of the chrysoprasius, of which Pliny says, that some of them were full of specks, and of a variable color.

CHRYSOPHYLLUM, the bully tree, in botany, a genus of the monogynia order, and pentandria class of plants; natural order forty-third, dumosæ: cor. campanulated, decemfid, with the segments alternately a little patent; fruit a ten-seeded berry. There are seven species, all natives of the West Indies. The chief are, 1. C. cainito, a Jamaica tree, rising thirty or forty feet high, with a large trunk covered with a brown bark, and dividing into many flexible slender branches, which generally hang downward, garnished with spear-shaped leaves, whose under sides are of a bright russet color. The flowers come out at the extremities of the branches, disposed in oblong bunches, which are succeeded by fruit of the size of a golden pippin, that are very rough to the palate, and astringent; but when kept some time they mellow, and have an agreeable flavor. 2. C. glabrum never rises to the height of the cainito, nor do the trunks grow to half the size; but the branches are slender and garnished with leaves like those of the other. The flowers come out in clusters from the sides of the branches, which are succeeded by oval smooth fruit, about the size of a bergamot pear. It contains a white clammy juice when fresh; but, after being kept a few days, it becomes sweet, soft, and delicious. Enclosed are four or five black seeds of the size of a pumpion. Both species are often preserved in large stoves, and are propagated by seeds; but they never bear the open air in this country.

CHRYSOPILON, in natural history, a name given by some of the ancients to a species of the beryl, which had a yellowish tinge.

CHRYSOPSIS, the golden-eye, in natural history, the name of a species of fly, so called from the beautiful gold color of its eyes. It is a long bodied fly, with extremely thin and transparent wings of a silvery color, with green ribs or nerves; the body is green, and the antennæ very slender and blackish. It is a very slow flyer, and is common in gardens; it is frequently found on the elder; and has a very strong smell.

CHRYSO'PRASUS, *n. s.* Χρυσος gold, and *prasinus* green. A precious stone of a yellow color, approaching to green.

> The ninth a topaz, the tenth a *chrysoprasus*. *Rev.*

Chrysoprasus, the tenth of the precious stones mentioned in the Revelation, as forming the foundation of the heavenly Jerusalem. The chrysoprasus is by mineralogists reckoned to be a variety of the chrysolite, by Cronstadt called the yellowish-green and cloudy topaz. He supposes it to be the substance which serves as a matrix to the chrysolite; as those that he had seen were like the clear veined quartz, called in Sweden milk crystal, which is the first degree of crystallisation. According to Magellan, it is of a green color, deeper than the chrysolite, but with a yellowish tinge inclining to blue, like the green leek. Achard says that it is never found crystallised, and that it is semi-transparent. By others it is reckoned among the quartz, and its color is supposed to be owing to the mixture of cobalt, as it gives a fine blue glass when melted with borax, or with fixed alkali. Achard, however, found the glass of a deep yellow when the fusion was made with borax, and that it really contains some calx of copper instead of cobalt. Dutens says, that some gold has been found in this kind of stone: but this last belongs in all probability, says Magellan, to another class of substances, viz. the vitreous spars: to which also belongs most probably the aventurine. See Spar. The chrysoprasus only differs from the chrysolite in its bluish hue.

CHRYSOSPLENIUM, in botany, a genus of the digynia order and decandria class of plants; natural order twelfth, succulentæ: cal. quadrifid or quinquefid, and colored: cor. none: cap. birostrated, unilocular and polyspermous. Its English name is golden saxifrage.

CHRYSOSTOM (St. John), a celebrated patriarch of Constantinople, and one of the most admired fathers of the church, was born of a noble family at Antioch, about A. D. 347. He studied rhetoric under Libavius, and philosophy under Andragathus: after which he spent some time in solitude in the mountains near Antioch; but, the austerities he endured having impaired his health, he returned to Antioch, where he was ordained deacon by Meletius. Flavian, Meletius's successor, raised him to the office of presbyter five years after; when he distinguished himself so greatly by his eloquence, that he obtained the surname of Chrysostom, or golden mouth. Nectarius, patriarch of Constantinople, dying in 399, St. Chrysostom, whose fame was spread throughout the whole empire, was unanimously elected by both clergy and people. The emperor Arcadius confirmed his election, and caused him to leave Antioch privately, where the people were very unwilling to part with him. He was ordained bishop on the 26th of February 398; when he obtained an order from the emperor against the Eunomians and Montanists; reformed the abuses which subsisted among his clergy; retrenched a great part of the expenses in which his predecessors had lived, in order to feed the poor and build hospitals; and preached with the utmost zeal against the pride, luxury, and avarice of the great. But his pious liberty of speech procured him many powerful enemies. He differed with Theophilus of Alexandria, who procured his deposition and banishment, but he was soon recalled. After this, declaiming against the dedication of a statue erected to the empress, she banished him to Cucusus in Armenia, a most barren and inhospitable place; and afterwards, as they were removing him from Petyus, the soldiers treated him so roughly, that he died in the way, A. D. 407. The best edition of his works is that published at Paris in 1718, by Montfaucon. They were well edited in 1612, by Savile, at Eton, in nine volumes folio, on which he is said to have expended £8000; and also by Montfaucon at Paris, in 1718. Erasmus and Fronton le Duc, also published Latin versions. The work of Erasmus is only a collection of the existing versions; that of Fronton le Duc is a new translation, and was subsequently adopted by Montfaucon.

CHRYSTAL. See CRYSTAL.

CHTHONIA, in antiquity, a festival kept in honor of Ceres.

CHU, emperor of China. See CHINA.

CHUB, *n. s.* From cop, a great head. A river fish. The cheven.

The *chub* is in prime from Midmay to Candlemas, but best in winter. He is full of small bones: he eats waterish; not firm, but limp and tasteless: nevertheless he may be so dressed as to make him very good meat.
Walton's Angler.

CHUB, or CHUBB, in ichthyology. See CYPRINUS.

CHUBB (Thomas), a noted polemical writer, born at East Harnham, near Salisbury, in 1679. He was apprenticed to a glover at Salisbury, and afterwards entered into partnership with a tallow-chandler. Being a man of strong natural parts, he employed all his leisure in reading; and, though a stranger to the learned languages, became tolerably versed in geography, mathematics, and other branches of science. His favorite study was divinity; and he formed a little society for the purpose of debating on religious subjects, about the time that the trinitarian controversy was so warmly agitated between Clarke and Waterland. This subject, therefore, falling under the cognizance of Chubb's assembly, he drew up his sentiments on it, in a dissertation, which was afterwards published, under the title of the Supremacy of the Father asserted. In this piece Mr. Chubb showed great talents in reasoning; and acquired so much reputation, that the late Sir Joseph Jekyl, took him into his family; he did not, however, continue with him many years; but chose to return to his friends at Salisbury. He published afterwards a quarto volume of tracts, which Pope informs his friend Gay, he 'read through with admiration of the writer, though not always with approbation of his doctrine.' He died unmarried in the sixty-eighth year of his age, and left behind him two volumes of posthumous tracts, in which he appears to have had little belief in revelation.

CHUB'BED, *adj.* From chub. Bigheaded like a chub.

CHUCK, *v. n.*, *v. a.* & *n. s.* } If deri
CHU'CK-FARTHING, } from jam, i
CHU'CKLE, *v. n.* & *v a.* } signifies t
throw; to strike gently. If from Ital. chioc or Scot. *chuckie*; it is descriptive of a pecul kind of natural sounds; namely, to the noise a hen when calling her young; to the tones endearment and fondling. Chuckle is applied also to vehement convulsive laughter, and to a half-suppressed self-satisfied laugh of exultation over the misfortunes or sufferings of others; or at the idea of our own schemes and plans succeeding.

He flew down fro the beme,
For it was day; and, eke, his hennes all;
And with a *chuk*, he gan hem for to calle,
For he had found a corn lay in the yerd.
Chaucer's Cant. Tale.

On his toos he rometh up and doun;
Him deigned not to set his foot to ground;
He *chukketh* when he hath a corn yfound;
And to him rennen, than his wives alle.
Thus real, as a prince is in his halle,
Leave I this chaunteclerce in his pasture,
And after wol I tell his aventure.
Id.

Come, your promise.——What promise, *chuck*?
Shakspeare.

I am not far from the women's apartment, I a sure; and if these birds are within distance, her that will *chuckle* 'em together.
Dryden.

What tale shall I to my old father tell?
'Twill make him *chuckle* thou'rt bestowed so well.
Id.

Then crowing, clapped his wings, th' appointed call,
To *chuck* his wives together in the hall.
Id. Fables.

Your confessor, that parcel of holy guts and garbidge; he must *chuckle* you, and moan you.
Id. Spanish Friar.

She to intrigues was e'en hard-hearted;
She *chuckled* when a bawd was carted.
Prior.

Come, *chuck* the infant under the chin, force a smile, and cry, Ah, the boy takes after his mother's relations.
Congreve.

He made the *chuck* four or five times, that people use to make to chickens when they call them.
Temple.

He lost his money at *chuck-farthing*, shuffle-cap, and all-fours.
Arbuthnot's History of John Bull.

CHUCUITO, a town and province of Peru, South America, bounded on the east by the lake of this name, north by that of Puno, and southeast by that of Pacages, and the great chain of the Cordillera. It is seventy-five miles in length from north to south, and about fifty in breadth; too cold generally for grain and fruits; in some of the glens only it produces barley and pulse: but it abounds in cattle and sheep, and the lama, the vicunna, and the deer, thrive in the mountains. The fleece of the vicunna forms a beautiful wool, and is woven into various kinds of apparel. Carpets and quilts are also made from it. Silver ores are obtained in considerable quantities in this province, from a soft porphyritic ridge, extending about eighteen miles, and yielding about five pounds of silver per hundred weight. There are said to be likewise some un-worked veins of gold. The lakes abound with fish. Population about 30.000.

Chucuito, Titiaca, or Titicaca, a lake above alluded to, is situated in the Cordilleras of Peru, principally in the north-western part of the province of Los Charcos; and is one of the largest inland waters of South America, being 150 miles in length from north-west to south-east, about seventy-five in average breadth, and 240 miles in circumference; of an irregular oval figure. It is navigated by the largest ships, and in many of its bays there are from four to six fathoms of water; further from the shores, there is frequently a depth of from forty, fifty, and even seventy fathoms. It is subject to tremendous storms and gusts of wind. Several large rivers, and a number of smaller streams, flow into it, and the water has a remarkably disagreeable taste, but it abounds in excellent fish, and water fowl; and its banks are very picturesque, fertile, and populous. Some considerable islands diversify its surface. A celebrated temple of the sun formerly adorned one of them.

CHUDLEIGH, a town in Devonshire, seated on the Teign, nine miles south of Exeter, and 182 west by south of London. It carries on a woollen manufacture, and has a market on Saturday. Here formerly was a Benedictine monastery, and a palace of the bishop of Exeter. It gives the title of baron to the Clifford family.

CHU'ET, *n s.* Probably from to chew. An old word, as it seems, for forced meat.

> As for *chuets*, which are likewise minced meat, instead of butter and fat, it were good to moisten them partly with cream, or almond or pistachio milk.
> *Bacon's Natural History.*

CHUFF, *n. s.*
Chu'ffiness, *n. s.*
Chu'ffily, *adv.*
Chu'ffy, *adj.*
} A word of uncertain derivation; perhaps corrupted from chub, or derived from Welsh. *kwf*, a stock; Germ. *kuuf*, Scot. *cufe*, signifies a mean fellow; a churl; a fat-headed, clownish, surly boor.

> Hang ye, gorbellied knaves, are you undone?
> No, ye fat *chuffs*, I would your store were here.
> *Shakspeare.*

> A less generous *chuff* than this in the fable, would have hugged his bags to the last. *L'Estrange.*

> John answered *chuffily*. *Clarissa.*

CHUM, *n. s.* Armor. *chom*, to live together. A chamber fellow; a term used in the universities.

CHUMP, *n. s.* A thick heavy piece of wood, less than a block.

> When one is battered, they can quickly, of a *chump* of wood, accommodate themselves with another.
> *Moxon.*

CHUNAR, a district of Allahabad, Hindostan, situated about the twenty-fifth degree of north latitude. It is bounded on the north by the Ganges; on the south by the Soane; on the east by the Caramnassa; and on the west by Tarrar and Bogalecund. The northern part is fertile, but southward all is jungle and barren hills. The chief towns are Mirzapoor and Chunarghur and Bidjeeghur, now in ruins. The Boker River divides Chundail from this district. Pasturage is here frequently common to a whole village, and the land consequently is often overstocked. In the dry season the grass-cutters, who procure food for the horses of government or European settlers, will bring provender from a field when verdure scarcely appears. A sharp instrument cuts the grass below the surface of the earth, and the roots, when cleared by washing, afford the only green food which is to be found. In the cold season turnips, cabbages, carrots, and other European greens, are raised in the gardens; but the influence of the hot winds uniformly kills them. Chunar was formerly part of the zemindary of Benares.

CHUNARGHUR, a town and fortress in the district of Chunar, province of Allahabad, Hindostan, lat. 25° N. long. nearly 83° E. It lies on the south bank of the river Ganges, the navigation of which is completely commanded by its batteries, so that no boat can pass without inspection. The fort is very strong, and its fortifications, according to the Indian method, consist of walls and towers one behind another; it stands on a free-stone rock, several hundred feet high, advancing far into the river. A few scattered huts and European bungalows compose the town, which at some seasons is very hot and unhealthy. On the north a chain of low hills runs parallel to the right bank of the river, which is covered with plantations, through which the place is approached on that side. In 1530 it was the residence of the Afghan Shere Khan, who expelled the emperor Humayoon from Hindostan; in 1575 it was taken by the Moguls, and in 1763 it was delivered up to the British, and has been in the Company's possession ever since. It was formerly a place of importance, but the military depôt has been transferred to Allahabad. It is 469 miles distant from Calcutta by the nearest route.

CHUPMESSAHITES, Turkish, i. e. protector of Christians, a sect among the Mahommedans, who believe that Jesus Christ is God, and the true Messiah, the redeemer of the world; but without rendering him any public worship. Ricaut says, there are many Chupmessahites among the people of fashion in Turkey, and some even in the seraglio.

CHUPRAH, a town of Hindostan, in the Candeish country, fifty miles west of Burhampour, and 112 S. S.W. of Indore.

Chuprah, a town of Hindostan, in the country of Bahar, on the north coast of the Ganges; twenty-five miles north-west of Patna.

CHUQUISACA, or Laplata, a city of Los Charcas, South America, an archbishop's see and capital of that province, was founded by Anzures, one of Pizarro's captains, in 1538. It stands in a plain, surrounded by hills. The air in summer is mild, but the winter, which begins in September and continues till March, is attended with thunder-storms and rains of long continuance. The houses, except in the great squares, are of one story only; they are tiled, roomy, and convenient. Water is scarce, though public fountains are seen in different parts, and gardens adorn many of the houses. The spacious cathedral here is of respectable architecture, and profusely ornamented with gilding and painting: all the ecclesiastical edifices, which include two churches, five convents, two nunneries, and a conventual hospital, are respectable buildings: but Laplata is principally distinguished by its university, dedicated to St. Francis Xavier, and at one period a most flourishing institution. The professional chairs may be filled either by the clergy or laity. Some of the most ancient families of Peru reside in the beautiful villas of this neighbourhood. The river Cachimay approaches the city within two, and the Pilcomayo within about six leagues.

CHURCH, *n. s.* Sax. cyrce, κυριακη. The collective body of Christians, usually termed the Catholic Church.

The *church*, being a supernatural society, doth differ from natural societies in this, that the persons unto whom we associate ourselves in the one, are men, simply considered as men; but they to whom we be joined in the other, are God, angels, and holy men. *Hooker.*

Catholic, in Greek, signifies universal, and the Christian *Church* was so called, as consisting of all nations to whom the gospel was to be preached, in contradistinction to the Jewish *church*, which consisted for the most part of Jews only. *Milton's True Religion, &c.*

Any body of Christians adhering to the institutes of Christian worship and voluntarily associated.

The visible *Church* of Christ is a congregation of faithful men, in the which the pure word of God is preached, and the Sacraments be duly ministered according to Christ's ordinance; in all those things, that of necessity are requisite to the same. *Articles of Religion.*

The place which Christians consecrate to the worship of God.

The thridde circumstance is the place ther thou hast don sinne; whether in other mennes houses, or in thin owen; in feld, in *chirche*, or in *chirchehawe*. *Chaucer. The Persones Tale.*

Some hir *churches* nevir ne sie,
Ne ner o penie thider sende;
Though that the pore for hunger die,
O penie on them will thei not spende.
Id. The Plowman's Tale.

He in his furie all shall over-ronne;
And holy *church* with faithless hands deface,
That thy sad people, utterly fordonne,
Shall to the utmost mountains fly apace.
Spenser.

Though you untie the winds, and let them fight
Against the *churches*. *Shakspeare.*

It is used frequently in conjunction with other words, as church-member, the members of a church; church power, spiritual or ecclesiastical authority; church militant, the church in its state of warfare.

For he was of that stubborn crew
Of errant Saints whom all men grant,
To be the true *church militant*. *Hudibras.*

To CHURCH, *v. a.* From the noun. To perform with any one the office of returning thanks in the church after any signal deliverance, as from the danger of childbirth.

CHURCH, GREEK, or EASTERN, comprehends the churches of all the countries anciently subject to the Greek, or eastern empire, and through which their language was carried: that is, all the space extending from Greece to Mesopotamia and Persia, and thence into Egypt. This church has been divided from the Roman see since the time of the emperor Phocas. Its principal member at this time is RUSSIA, which see.

CHURCH, LATIN, or WESTERN, comprehends all the churches of Italy, Portugal, Spain, Africa, the north, and all other countries whither the Romans carried their language. Great Britain, part of the Netherlands, of Germany, and of the North of Europe, have been separated from the great Roman Catholic body of this church, ever since the Reformation.

CHURCH OF ENGLAND, the episcopal church established by law in this kingdom, which has existed ever since the time of Henry VIII. (who, after being defender of the Roman Catholic faith, became its opposer); with the exception of his daughter Mary's reign. Its doctrines are chiefly Lutheran, and its form of government hierarchical. The particulars of its internal government and polity belong, strictly, to the law of England, of which they form a part. See ENGLAND.

CHURCH OF ROME, or the ROMAN CATHOLIC CHURCH, claims the title of being the mother church, and is undoubtedly the most ancient of all the established churches in Christendom. See ROMAN CATHOLIC CHURCH.

CHURCH OF SCOTLAND, the presbyterian church established by law in that kingdom, which has existed (with some interruptions during the reigns of the Stuarts), ever since the time of John Knox, when the voice of the people prevailed in its establishment over the influence of the crown. Its doctrines are Calvinistic, and its form of government republican.

CHURCH, REFORMED, comprehends the whole Protestant churches in Europe and America, whether Lutheran, Calvinistic, Independent, Quaker, Baptist, or of any other denomination, who dissent from the church of Rome.

CHURCH, in architecture, is defined by Daviler, a large oblong edifice, in form of a ship, with NAVE, CHOIR, AISLES, BELFRY, &c. See these articles. The form of the ancient Greek churches, when complete, was as follows:—first was a porch or portico, called προναος, the vaunt-nave: this was adorned with columns on the outside, and on the inside surrounded with a wall; in the middle whereof was a door, through which they passed into a second portico. The first of these porticoes was destined for the energumens, and penitents in the first stage of their repentance; the second was much longer, destined for penitents of the second class, and the catechumens, and hence called ναρθης, ferula, because those placed in it began be subject to the discipline of the church. These two porticoes took up about one-third of the space of the church. From the second portico, they passed into the nave, which took up nearly another third of the church. In the middle, or at one side of the nave, was the ambo, where the deacons and priests read the gospel, and preached. The nave was destined for the reception of the people, who here assisted at prayers. Near the entrance of this was the baptistery or font. Beyond the nave was the choir, χορος, set with seats, and round: the first seat on the right, next the sanctuary, being for the choragus, or chanter. From the choir they ascended by steps to the sanctuary, which was entered at three doors. The sanctuary had three apsides in its length; a great one in the middle, under which was the altar, crowned with a baldachin, supported by four columns. Under each of the small apsides, was a table or cupboard, in manner of a buffet. Of the Greek churches now remaining, few have all the parts above described, most of them having been reduced to ruins or converted into mosques. Churches are variously distinguished by builders. Church in a Greek cross, that where the length of the traverse part is equal to that of the nave; so called because most of the Greek churches are built in this form. Church in a Latin cross, that whose nave is longer than the cross part, as is most of the Gothic churches. Church in rotundo, that whose plan is a perfect circle, in imitation of the pantheon.

Church-ale, *n. s.* From church and ale. A wake, or feast, commemoratory of the dedication of the church.

> For the *church-ale*, two young men of the parish are yearly chosen to be wardens, who make collection among the parishioners of what provision it pleaseth them to bestow, *Carew.*

Church-attire, *n. s.* The habit in which men officiate at divine service.

> These and such like were their discourses, touching that *church-attire*, which with us, for the most part, is used in publick prayer. *Hooker.*

Church-authority, *n. s.* Ecclesiastical power; spiritual jurisdiction.

> In this point of *church-authority*, I have sifted all the little scraps alleged. *Atterbury.*

Church-burial, *n. s.* Burial according to the rites of the church.

> The bishop has the care of seeing that all Christians, after their deaths, be not denied *church-burial*, according to the usage and custom of the place. *Ayliffe's Parergon.*

Church-founder, *n. s.* He that builds or endows churches.

> Whether emperors or bishops in those days were *church-founders*, the solemn dedication of churches they thought not to be a work in itself either vain or superstitious. *Hooker.*

CHURCHILL (Charles), a celebrated satirist, the son of Mr. Charles Churchill, curate and lecturer of St. John's, Westminster, was educated at Westminster-school. His capacity was greater than his application, so that he acquired the character of a boy that could do good if he would. For want of common attainment in the languages, he was rejected from Oxford, whither his father had sent him; and probably this occasioned the frequent invectives we find in his works against that university. Upon his return, he applied to his studies in Westminster-school, where, at seventeen years of age, he contracted an intimacy with a lady, whom he married. Mr. Churchill afterwards obtained a small curacy of £30 a year, in Wales, but endeavouring to better his circumstances, by keeping a cyder cellar, it involved him in difficulties, which obliged him to leave Wales and come to London. His father dying soon after, he succeeded him; and, to improve his income, which scarcely produced £100 a year, he became teacher at a ladies' school. His mode of living, however, bearing no proportion to his income, he contracted many debts, and a jail threatened to complete his misfortunes: when he was relieved by the benevolence of Mr. Lloyd, father to the poet of that name. This gentleman induced Mr. Churchill to write the Rosciad. It first came out without the author's name: but the justness of the remarks, and the severity of the satire, soon excited curiosity. The public ascribed it to a number of wits, and soon induced Churchill to throw off the mask, and issue the second edition with his name at full length. His next performance was his Apology to the Critical Reviewers. He now quitted his wife, commenced a complete man of the town; and, giddy with false praise, thought his talents a sufficient atonement for all his follies. He undertook at this time a poem called Night, written upon the principle, that whatever our follies are, we should never attempt to conceal them. This, and his other poems, being spoken of contemptuously by Dr. Johnson, the author retorted upon him in his next poem, of the Ghost, in which he has exhibited the doctor in the character of Pomposo, with some ingenuity. The poem of Night and the Ghost had not the rapid sale the author expected; but his Prophecy of Famine, in which he exerted his virulent pen against the whole Scotch nation, soon made ample amends for the late paroxysm in his fame. His Gotham, Independence, and The Times, were said by his enemies to be written by a man who desired to avail himself of the avidity of the public curiosity in his favor, and rather to have been aimed at the pockets than the minds of his readers; but this assertion sprung from prejudice, as those poems contain some of his most animated passages. Mr. Churchill died in 1764, of a miliary fever, with which he was seized at Boulogne, in France, whither he had gone on a visit to Mr. Wilkes. After his death his poems were collected, and printed together, in two volumes 8vo.

Churchill (John), duke of Marlborough. See Marlborough, Duke of.

Churchman, *n. s.* Church and man. An ecclesiastic; a clergyman; one that ministers in sacred things,

> If any thing be offered to you, touching the church and *churchmen*, or church government, rely not only upon yourself. *Bacon.*

> A very difficult work to do, to reform and reduce a church into order, that had been so long neglected, and that was so ill filled by many weak and more wilful *churchmen*. *Clarendon.*

Patience in want, and poverty of mind,
These marks of church and *churchmen* he designed,
And living taught, and dying left behind.
Dryden's Fables.

I met a reverend fat old gouty friar,
With a paunch swollen so high, his double chin
Might rest upon 't, a true son of the *church*!
Fresh coloured, and well-thriving on his trade.
Id. Spanish Friar.

CHURCH-SCOT, or **Churchesset**, a payment or contribution, by the Latin writers frequently called primitiæ feminum; being, at first, a certain measure of wheat, paid to the priest on St. Martin's day, as the first-fruits of harvest. This was enjoined by the laws of king Malcolm IV. and Canute, c. 10. But after this, it came to signify a reserve of corn-rent paid to the secular priests, or to the religious; and sometimes was taken in so general a sense as to include poultry, or any other provision that was paid in kind to the religious. See Tithe.

Church-wardens, *n. s.* See Warden. Officers yearly chosen, by the consent of the minister and parishioners, according to the custom of each place, to look to the church, church-yard, and such things as belong to both; and to observe the behaviour of the parishioners, for such faults as appertain to the jurisdiction or censure of the ecclesiastical court. They are a kind of corporation, enabled by law to sue for any thing belonging to their church, or poor of their parish.

There should likewise, *church-wardens* of the gravest men in the parish, be appointed, as they be here in England. *Spenser.*

Our *church-wardens*
Feast on the silver, and give us the farthings. *Gay.*

Churchwardens, or **Reeves**, in the English ecclesiastical polity, are the guardians of the church, and representatives of the parish. They are sometimes appointed by the minister, sometimes by the parish, sometimes by both. They are taken, in favor of the church, to be, for some purposes, a kind of corporation at the common law; that is, they are enabled, by that name, to have a property in goods and chattels, and to bring actions for them, for the use and profit of the parish. Yet they may not waste the church goods, and may be removed by the parish, and then called to account by actions at common law: but there is no method of calling them to account but by first removing them; for none can legally do it but those who are put in their place. As to lands or other real property, as the church, churchyard, &c. they have no sort of interest therein; but if any damage is done thereto, the parson only, or vicar, shall have the action. Their office is also to repair the church, and make rates and levies for that purpose; but these are recoverable only in the ecclesiastical courts. They are to levy a shilling forfeiture on all such as do not go to church on sundays and holidays; and are empowered to keep all persons orderly while there; to which end it has been held that a churchwarden may justify the pulling off a man's hat, without being guilty of either an assault or trespass. There are also a multitude of other petty parochial powers committed to their charge by divers acts of parliament. No person can be compelled to serve the office that is not residing in the parish, nor peers, clergymen, dissenting ministers, counsellors, attorneys, clerks in court, physicians, surgeons, or apothecaries.

Church-yard, *n. s.* The ground adjoining the church, in which the dead are buried; a cemetery.

I am almost afraid to stand alone
Here in the *church-yard*, yet I will adventure. *Shakspeare.*

In *church-yards* where they bury much, the earth will consume the corpse in far shorter time than other earth will. *Bacon.*

No place so sacred from such fops is barred;
Nor is Paul's church more safe than Paul's church-*yard*. *Pope.*

With wicker rods we fenced her tomb around,
To ward from man and beast the hallowed ground,
Lest her new grave the parson's cattle raze,
For both his horse and cow the *church-yard* graze. *Gay.*

Churchyards are consecrated with great solemnity. In the church of Rome, if a church-yard, which has been thus consecrated, should afterwards be polluted, by any indecent action, or profaned by the burial of an infidel, a heretic, an excommunicated or unbaptised person, it must be reconciled; and the ceremony of the reconciliation is performed with the same solemnity as that of the consecration.

Churchyard (Thomas), a poet who flourished in the reigns of Henry VIII., Edward VI. queen Mary, and queen Elizabeth, was born at Shrewsbury; and inherited a fortune, which he soon exhausted in a fruitless attendance on the court, where he only gained the favor of being retained a domestic in the family of lord Surrey. By his lordship's encouragement, however, he commenced poet. Upon his patron's death, he applied to arms, and was twice made prisoner. He published twelve pieces, which he afterwards printed together in one volume, under the title of Churchyard's Chips; also the tragedy of Thomas Mowbray, Duke of Norfolk. He died in 1570.

CHURL, *n. s.*
Chu'rlish, *adj.*
Chu'rlishly, *adv.*
Chu'rlishness, *n. s.*
} Goth. *karl*; Swed. *karl*; Teut. *kerl*; Sax. ceorl, eorl and ceorl, noble and plebeian; high and low. Thus it is applied to a rustic man; a surly fellow; a niggard. Churlish describes his qualities Churlishly, and churlishness, his behaviour and disposition. The noun sometimes simply means a rustic; a strong-bodied laborer. Churlish is also applied to things that are rugged, harsh, unyielding, and unmalleable.

Lo, brother, quod the fend, what told I thee?
Here may ye seen, min owen dere brother,
The *cherl* spake o thing, but he thought another.
Chaucer. The Freres Tale.

Quoth Pandarus, thou hast a ful grete care,
Lest that the *chorl* may fal out of the mone.
Id. Troilus and Creseide.

He seeing with that *chorle* so faire a wight,
Decked with many a costly ornament,
Much merveiled thereat, as well he might,
And thought that match a fowle disparagement.
Spenser.

He holdeth himself a gentleman, and scorneth to work or use any hard labour, which he saith is the life of a peasant or *churl*. *Id. State of Ireland.*

A *churl's* courtesy rarely comes, but either for gain or falsehood. *Sidney.*

Poison, I see, hath been his timeless end!
O *churl*, drink all, and leave no friendly drop
To help me after! *Shakspeare.*

Will you again unknit
This *churlish* knot of all abhorred war? *Id.*

A sea of melting pearl, which some call tears,
Those at her father's *churlish* feet she tendered. *Id.*

The interruption of their *churlish* drums
Cuts off mere circumstance; they are, at hand
To parly or to fight. *Id.*

Spain found the war so *churlish* and longsome, as they found they should consume themselves in an endless war. *Bacon.*

If there be emission of spirit, the body of the metal will be hard and *churlish*. *Id. Natural History.*

The Cornish were become, like metal often fired and quenched, *churlish* and that would sooner break than bow. *Id. Henry VII.*

A lion in love with a lass, desired her father's consent. The answer was *churlish* enough: He'd never marry his daughter to a brute. *L'Estrange.*

In the *churlishness* of fortune, a poor honest man suffers in this world. *Id.*

To the oak, now regnant, the olive did *churlishly* put over the son for a reward of the service of his sire. *Howel.*

From this light cause the infernal maid prepares
The country *churls* to mischief, hate, and wars. *Dryden.*

This sullen *churlish* thief
Had all his mind placed upon Mully's beef. *King.*

In the hundreds of Essex they have a very *churlish* blue clay. *Mortimer's Husbandry.*

CHURLE, Ceorle, or Carl, in the Saxon times, signified a tenant at will, who held of the Thanes on condition of rent and service. They were of two sorts: one rented the estate like our farmers: the other tilled and manured the demesnes, and were called ploughmen.

CHURME, *n. s.* More properly chirm, from the Sax. cẏꞃme, a clamour or noise; as to chirre is to coo as a turtle. A confused sound; a noise.

He was conveyed to the tower, with the *churme* of a thousand taunts and reproaches. *Bacon.*

CHURN, *n. s.* & *v. a.* Properly chern, from Dut. *kern*; Sax. ceꞃene. The vessel in which the butter is, by long and violent agitation, coagulated and separated from the serous parts of the milk. To agitate or shake anything by a violent motion.

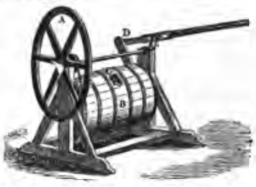
Perchance he spoke not; but
Like a full-acorned boar, a *churning* on,
Cried oh! *Shakespeare.*

You may try the force of imagination, upon staying the coming of butter after the *churning*. *Bacon's Natural History.*

Churned in his teeth the foamy venom rose. *Addison.*

The cleanly cheese-press she could never turn,
Her awkward fist did ne'er employ the *churn*. *Gay.*

Churn, Common, is a deep wooden vessel, of a conical shape; resting on its base, and having closely fitted into its upper part a cover of wood, with a hole in its centre to admit the handle of the churn-staff. This staff consists of a long upright pole, to the bottom of which is fixed a broad kind of foot, perforated at different parts, and calculated to occasion a more universal agitation of the milk in churning. Many attempts have been made to improve this useful implement; but none have been accepted in our dairies, except the barrel churn, a kind of rolling barrel, with such dashers within as are calculated to quicken the process of making butter. Mr. Harland has, in his improved barrel churn, in a great measure obviated the awkward rotatory motion of the barrel churn; which is supplied by a very easy muscular exertion, resembling in its nature that of a common pump-handle; and by affixing a fly-wheel, A, the agitation is performed in a more equable manner, and on that account the butter is more perfectly separated from the whey.



B is the barrel containing the whey, and furnished with dashers; C the shutter by which the whey is put in and the butter taken out; D the handle which lifts up and down the little cog-wheel E, and thus communicates to the fly-wheel and barrel a rotatory motion.

'In the process of churning,' says Mr. Loudon, 'great nicety is required; a regular stroke in plunge or pump churns, and a regular motion in those of the barrel or turning kind, must, if possible, never be deviated from. A few hasty irregular strokes or turns has been known to spoil what would otherwise have been excellent butter. Twamley, in his Essays on the Dairy, recommends the selection of a churner of a cool phlegmatic temper, of a sedate disposition and character; and advises never to allow any individuals, especially the young, to touch the churn without the greatest caution and circumspection. To those who have been accustomed to see cream churned without being properly prepared, churning may, perhaps, appear to be severe labor for one person in a large dairy: but nothing is more easy than the process of making butter, where the cream has been duly prepared. During summer the best time for making butter is early in the morning, before the sun acquires much power: and, if a pump churn be used, it may be plunged a foot deep into a tub of cold water, where it should remain during the whole time of churning; which will very much harden the butter. During winter, from the equality of temperature, which, if it be properly managed, will generally prevail in a dairy, it will very rarely, if ever, be necessary to churn near the fire. Should any circumstance, however, require this, care should be taken not to churn so near the fire as to heat the wood; as it would impart a strong rancid taste to the butter.'

CHU'RRWORM, *n. s.* From Sax. cẏꞃꞃan. An insect that turns about nimbly; called also a fancricket.

CHUSE. See *To* Choose.

CHUWAL, a district of the province of Guzerat, Hindostan, situated between the twenty-third and twenty-fourth degrees of north latitude, and about the seventy-second degree of east longitude. It is bounded by the Banass River on the north-west, and is, particularly in this direction, a swampy and flat country, held by several independent chiefs. Janagur is the only town of consequence.

CHYLE, *n. s.*
CHYLA'CEOUS, *adj.*
CHYLIFA'CTION, *n. s.*
CHYLIFA'CTIVE, *adj.*
CHYLOPOE'TICK, *adj.*
CHY'LOUS, *adj.*
} From Lat. *chylus*, and *facio*, to make. Χύλος and ποιέω. The white juice formed in the stomach by digestion of the aliment, and afterwards changed into blood. Belonging to chyle; the act or process of making chyle in the body; having the power or office of making chyle; consisting of chyle.

Choler is hot and dry, bitter, begotten of the hotter parts of the *chylus*, and gathered to the gall: it helps the natural heat and senses. *Burton. Anat. Mel.*

When the spirits of the *chyle* have half fermented the *chylaceous* mass, it has the state of drink not ripened by fermentation. *Floyer on the Humours.*

The *chyle* cannot pass through the smallest vessels. *Arbuthnot.*

According to the force of the *chylopoetick* organs, more or less *chyle* may be extracted from the same food. *Id.*

Milk is the *chylous* part of an animal, already prepared. *Id.*

Drinking excessively during the time of *chylifaction*, stops perspiration. *Id. on Aliments.*

The *chyle* enters the blood in an odd place, but perhaps the most commodious place possible, viz. at a large vein in the neck, so situated with respect to the circulation, as speedily to bring the mixture to the heart. *Paley's Natural Theology.*

CHYLE, in anatomy, the milk-like liquor contained in the lacteals, from which the blood is formed, and is separated from the chyme in the process of digestion, by means of the gastric juice. By its acescent qualities it restrains the putrid tendency of the blood; hence the dreadful state of the humors in this respect after starving. By its very copious aqueous latex, it prevents the thickening of the fluids, and thus renders them fit for the various secretions. The chyle secreted in the breasts of puerperal women forms the nutritious milk. The chyle, as found in the thoracic duct has no smell, but a slightly acido-saccharine taste; yet it blues reddened litmus paper, by its unsaturated alkali. Soon after it is drawn from the duct, it separates by coagulation into a thicker and thinner matter. 1. The former, or curd, seems intermediate between albumen and fibrin. Potash and soda dissolve it, with a slight exhalation of ammonia. Water of ammonia forms with it a reddish solution. Dilute sulphuric acid dissolves the coagulum; and very weak nitric acid changes it into adipocire. By heat, it is converted into a charcoal of difficult incineration, which contains common salt and phosphate of lime, with minute traces of iron. 2. From the serous portion, heat, alcohol, and acids, precipitate a copious coagulum of albumen. If the alcohol be hot, a little matter analogous to the substance of brain, is subsequently deposited. By evaporation and cooling, Mr. Brande obtained crystals analagous to the sugar of milk. Dr. Marcet found the chyle of graminivorous animals thinner and darker, and less charged with albumen, than that of carnivorous. In the former, the weight of the fluid part to that of the coagulum was nearly two to one.

CHYLEMATIS, in ancient geography, a large river of Africa, in Algiers, mentioned by Ptolemy, supposed to be the same with the or Cena.

CHYME, or CHYMUS. By the digestive process in the stomach of animals, the food is converted into a milky fluid, called chyme, which, passing into the intestines, is mixed with pancreatic juice and bile, and thereafter resolved into chyle and feculent matter.

CHY'MIST, *n. s.*
CHY'MISTRY, *n. s.*
CHY'MICALLY, *adv.*
CHY'MIC, *adj.*
CHY'MICAL, *adj.*
} Derived by some from χυμος juice, or to melt; by others from an oriental word, black. According to this supposed etymology, it is written with y or i. The art of separating the different substances of mixed bodies by fire, or otherwise; as a science it is now generally spelt CHEMISTRY, which we but, thinking this mode of orthography not consistent with the etymology, we retain it here.

Should the time ever arrive, which is not perhaps to be despaired of, when we can compound ingredients, so as to form a solvent which will act in the manner in which the gastric juice acts, we may be able to ascertain the *chymical* principles upon which its efficacy depends, as well as from what part, and by what concoction, in the human body, these principles are generated and derived. *Paley's Natural Theology.*

CHYTLA, in antiquity, a liquor made of wine and oil, and sometimes used in divination.

CHYTRI, in antiquity, a festival in honor of Bacchus and Mercury, kept by the Athenians on the thirteenth of the month Anthesterion.

CHYTRIUM, in ancient geography, a place in Ionia, in which formerly stood Clazomenæ; the Clazomenians, through fear of the Persians, removing from the continent to an adjacent island. Alexander reduced the island, by a mole or causeway, to a peninsula.

CIBALÆ, or CIBALIS, in ancient geography, a town of Pannonia Inferior, seated on an eminence, near the lake Hiulka, north-west of Sirmium. The emperor Gratian was born in it, and was brought up to rope-making: and it was also rendered famous by the surprisal and defeat of Licinius by Constantine.

CIBA'RIOUS, *adj.* Lat. *cibarius*, from *cibus* food. Relating to food; useful for food; edible.

CIBBER (Colley), a celebrated comedian, dramatic writer, and poet-laureat, born in London in 1671. He derived his Christian name from his mother's family, and was intended for the church, but betook himself to the stage, for which he conceived an early inclination; though it was some time before he acquired any degree of notice, or even a competent salary. His first essay was in the comedy of Love's Last Shift, acted in 1695, which met with success; as did his own performance of the character of the fop in it. From that time, as he says himself, 'My muse and my spouse were so equally prolific, it the one was seldom the mother of a child, t in the same year the other made me the father a play. I think we had a dozen of each sort tween us; of both which kinds some died in eir infancy, and near an equal number of each ere alive when we quitted the theatre.' The areless Husband, acted in 1704, met with great plause, and is reckoned his best play; but ne was of more importance to him than the on-Juror, acted in 1717, and levelled against e Jacobites. This laid the foundation of the isunderstanding between him and Pope, raised im to be the hero of the Dunciad, and made im poet laureat in 1730, on which he quitted the tage. Cibber neither succeeded in acting nor in vriting tragedy; and his odes were not thought o partake either of the genius or spirit he showed n his comedies. He died in 1757.

Cibber (Theo.), son of the preceding, was born in 1703, and educated at Winchester. He was taken early to the theatrical profession, and followed in his father's line of character. Throughout his life he was chiefly distinguished by extravagance and profligacy, and was drowned in 1757, in his passage to Ireland. He altered for the stage some of Shakspeare's plays, and wrote Pattie and Peggy, a ballad opera. His name also appeared to Lives of the Poets, 5 vols. 12mo. His wife, the sister of Dr. Arne, became a tragic performer of the first eminence at Drury-lane. She translated St. Foix's Oracle, and died in 1766.

CIBDELOPLACIA, in natural history; a genus of spars debased by a very large admixture of earth. They are opaque, formed of thin crusts, covering vegetables and other bodies, by way of incrustations.

CIBDELOSTRACIA, in natural history, terrene spars, destitute of all brightness and transparence, formed into thin plates, and usually found coating over the sides of fissures, and other cavities of stones, with congeries of them of great extent, and of plain or botroyide surfaces.

CI'BOL, *n. s.* Fr. *ciboule*. A small sort of onion used in sallads. This word is common in the Scotch dialect; but the *l* is not pronounced.

Ciboules, or scallions, are a kind of degenerate onions. *Mortimer.*

CIBORIA, Ciborium. Egypt. i. e. a cup, in antiquity, the large husk of Egyptian beans, which are said to have been so large as to serve for drinking cups; whence the name.

CIBORIUM, in ecclesiastical writers, the covering for the altar. This covering is supported by four high columns, and forms a kind of tent for the eucharist, in the Romish churches. Some authors call it turris gestoria and others pyxis; but the pyxis is properly the box in which the eucharist is preserved.

CIBUS Ferialis, in antiquity, an entertainment peculiar to a funeral; for which purpose beans, parsley, lettuce, bread, eggs, lentils, and salt were in use.

CICACOLE, the largest of the Northern Circars, or districts of Hindostan, reaching from 17° to 20° north latitude, sub-divided into two portions, one bounded by the river Setteveram on the south, and the Poondv on the north, extending about 170 miles along the Bay of Bengal, including an area of 4400 square miles; the other, of a triangular form, extending eighty miles from Moland to Poondy near the frontier of Cuttack, and fifty miles to the north-west, containing about 1000 square miles. The capital is Cicacole, an ancient town, 118 miles from Ganjam. There is a mosque of great sanctity here, built in the year of the Hegira 105, by Mahommed Khan. See Circars.

CICADA, the grasshopper, in zoology, a genus of insects belonging to the order of hemiptera. The beak is inflected; the antennæ are setaceous; the four wings are membranaceous and deflected; and the feet, in most of the species, are of the jumping kind. The larvæ of several of this genus evacuate great quantities of a frothy matter upon the branches and leaves of plants, in the midst of which they constantly reside, probably for shelter against the search of other animals, to which they would become a prey. Nature has afforded this kind of defence to insects whose naked and soft bodies might otherwise very easily be injured; perhaps also the moisture of this foam may serve to screen them from the sultry beams of the sun. On removing the foam the larva appears, but it soon emits fresh foam, that hides it again from the eye. In the midst of this foamy substance the larva goes through its metamorphosis into a chrysalis and perfect insect. Other larvæ, whose bodies are not so soft, run over plants without any manner of defence, and escape from insects that might hurt them, by nimbly running or leaping. The chrysalids, and all the larvæ that produce them, differ little from each other, only that the former have the rudiments of wings, a kind of knob at the place were the wings will afterwards be in the perfect insect. The chrysalids walk, leap, and run over plants and trees; as do the larvæ which they produce. At length they throw off their teguments of chrysalids, slip their last slough, and then the insect appears in its utmost perfection. The male alone is then endowed with the faculty of singing, which it exercises not with its throat, but with an organ situated under the abdomen. Behind the legs of the male are observed two valvulæ, which, raised up, discover several cavities separated by various membranes. The middle contains a scaly triangle. Two vigorous muscles give motion to another membrane, which alternately becomes concave and convex. The air, agitated by this membrane, is modified within the other cavities; and, by the help of this sonorous instrument, he amorously solicits his female. This insect begins its song early in the morning, and continues it during the heat of the noon-tide sun. Its lively and animated music is, to the country people, a presage of a fine summer, a plentiful harvest, and a sure return of spring. The cicadæ have a head almost triangular, an oblong body, their wings fastigiated or in form of a roof, and six legs with which they walk and leap pretty briskly. In the females, at the extremity of the abdomen are two large laminæ, between which is enclosed, as in a sheath, a spine somewhat serrated, which serves them to deposit their eggs, and probably to sink them into the substance of those plants, which the young larvæ are to feed upon.

CICASICA, a town and district of Peru, bounded north and north-east by the mountains of the Andes, and by the province of Larecaxa, east by the province of Cochabamba, south-east by that of Paria and Oruro, south-west by that of Paucges, and north-west by that of Omasuyos. It is eighty leagues in length from east to west, and contains 50,000 inhabitants. Vast quantities of cattle are reared in the mountainous districts. Near the Andes the climate is very warm and humid, but fertile in fruits, sugar-cane, and cacao. The vine is also cultivated with success in these regions, and Jesuits' bark. Gold and silver mines were formerly worked, but they are at present closed.

CI'CATRICE, *n. s.*
CICATRI'SANT, *n. s.*
CICATRI'SIVE, *adj.*
CICATRIZA'TION, *n. s.*
CI'CATRIZE, *v. a.*

Lat. *cicatrix*. The scar remaining after a wound; an application that induces a cicatrice. Having the qualities proper to induce a cicatrice. The art of healing the wound. The state of being healed, or skinned over. To apply such medicines to wounds or ulcers, as heal and skin them over; to heal and induce the skin over a sore.

A vein bursted, or corroded, in the lungs, is looked upon to be for the most part incurable, because of the motion and coughing of the lungs tearing the gap wider, and hindering the conglutination and *cicatrization* of the vein. *Harvey.*

We incarned, and in a few days *cicatrized* it with a smooth cicatrix. *Wiseman on Tumours.*

The first stage of healing, or the discharge of matter, is called digestion; the second, or the filling up with flesh, incarnation; and the last, or skinning over, *cicatrization*. *Sharp's Surgery.*

CICATRICULA, in natural history, a small whitish speck in the yolk of an egg, which is the first rudiments of the future chick. Whatever way the egg is turned, that part of the yolk, which contains the cicatricula, is always uppermost, as is seen upon breaking an egg.

CICATRIX, in surgery, a little seam or elevation of callous flesh on the skin, after the healing of a wound or ulcer.

CICCA, in botany, a genus of the tetrandria order, and monœcia class of plants. Male CAL. tetraphyllous; COR. none; female CAL. triphyllous; COR. none; styles four; CAP. quadricoccous; SEED solitary. Species, one only, a Chinese tree, usually from thirty to forty feet in height.

CI'CELY, *n. s. myrrhis*. A sort of herb.

CICER, the chick pea, in botany, a genus of the decandria order, and diadelphia class of plants; natural order thirty-second, papilionaceæ: CAL. quinquepartite, as long as the corolla, with its four uppermost segments incumbent on the vexillum: the legumen is rhomboidal, turbid, and dispermous. There are but two species, which produce peas shaped like the common ones, but much smaller. They are much cultivated in Spain, where they are natives, being one of the ingredients in their olios; as also in France; but are rarely known in Britain.

CICERO (Marcus Tullius), the celebrated Roman orator, was born A. U. C. 647, and A. A. C. 107. His father Marcus Tullius, who was of the equestrian order, took great care of education, which was directed to the bar. Tully, at his first appearance in public, with such vehemence against Sylla's it became necessary for him to retire where he heard the Athenian orators sophers, and greatly improved both in and knowledge. Here he met with Titus ponius, who had been his school-fellow from his love to Athens, obtained the of Atticus; and here they revived and that friendship which subsisted between through life. From Athens he passed and after an excursion of two years Rome; where next year he was made The questors were sent annually into the vinces distributed to them by lot. Sicily, happening to fall to Cicero's share, acquitted himself so well, that he gained the and admiration of all the Sicilians. In a he made of the island before he left Sicily, discovered at Syracuse the tomb of Archimedes. His marriage with Terentia is supposed been celebrated immediately after his when he was about thirty years of age. questorship he gained an admission senate for life; and he employed himself stantly in defending the persons and of his fellow citizens. In his thirty- year he was elected Ædile, by the suffrages of all the tribes. After his but before his entrance upon the office, dertook the famed prosecution of C. Verres, late prætor of Sicily, who was charged with flagrant acts of injustice, rapine, and during his triennial government of that This was one of the most memorable of his life, for which he was justly antiquity, and will, in all ages, be the friends of mankind. The result was, so confounded Hortensius, then the orator at the bar, and usually styled the the forum, that he had nothing to say client. Verres, despairing of all defence, into voluntary exile; he is said to have lieved in this miserable situation by the sity of Cicero; yet was after all proscribed murdered by Marc Antony, for the sake fine statues and Corinthian vessels, of which had plundered the Sicilians. After the usual terval Cicero offered himself a candidate prætorship; and, in three different assemblies convened for the choice, he was unanimously elected the first prætor. He was now in the reer of his fortunes, and in sight, as it were, the consulship; and therefore, when his ship was at an end, he would not accept of any foreign province. His ambition was to shine in the city, as the guardian of its laws; and to teach the magistrates how to execute, the citizens how to obey them. Being in his forty-third year, he declared himself a candidate for the consulship along with six competitors, of whom four were patricians, or nobles; the last two the sons of fathers who had first imparted public honors to their families. Cicero was the only new man among them. In this competition the practice of bribing was shamefully carried on by Antonius and Catiline. However, as the election approached, Cicero's interest appeared superior to that of all the other candidates: for the nobles themselves, though desirous to depress him, yet from the dangers which threatened the city, began to think him the only man qualified to preserve the republic. The people, not content with silently voting for him, loudly and universally proclaimed Cicero the first consul; so that, as he himself says, 'he was not chosen by the votes of particular citizens, but by the common suffrage of the city; nor declared by the voice of the crier, but of the whole Roman people.' He had no sooner entered upon his office than he had occasion to exert himself against P. Servilius Rullus, one of the new tribunes, who had been alarming the senate with the promulgation of an Agrarian law; the purpose of which was to create a decem.virate, or ten commissioners, with absolute power for five years over all the revenues of the republic, to distribute them at pleasure to the citizens, &c. These laws used to be greedily received by the populace, but Cicero, in an artful and elegant speech from the rostra, gave such a turn to the inclination of the people, that they rejected this law with as much eagerness as they had ever received one. But the grand affair which constituted the glory of his consulship, and has transmitted his name with lustre to posterity, was the unwearied pains he took in suppressing that horrid conspiracy which was formed by Catiline for the subversion of the commonwealth. For this great service he was honored with the glorious title of pater patriæ, the father of his country. Cicero had no sooner quitted his office, than he began to feel the weight of that envy which is the certain fruit of illustrious merit. He was now, therefore, the common mark, not only of all the factions against whom he had declared perpetual war, but of an envious, and not less dangerous party, who determined to drive him out of the city. Cicero sent a particular account of his whole administration to Pompey, who was finishing the Mithridatic war in Asia, in hopes to prevent any wrong impressions there from the calumnies of his enemies, and to draw from him some public declaration in his favor. But Pompey, being informed by Metellus and Cæsar of the opposition that was rising against Cicero in Rome, answered him with great coldness. About this time Cicero bought a house of M. Crassus on the Palatine hill, adjoining to that in which he had always lived with his father, and which he is now supposed to have given up to his brother Quintus. The house cost him nearly £30,000, and seems to have been one of the noblest in Rome. It excited many reflections on his vanity, especially as it was purchased with borrowed money. The most remarkable event that happened in this, the forty-fifth year of Cicero's life, was the pollution of the mysteries of the Bona Dea by P. Clodius; which, by its consequences, involved Cicero in no small calamity. Clodius had an intrigue with Cæsar's wife Pompeia, who was celebrating in her house those sacrifices of the goddess to which no male person was ever admitted. Clodius, wishing to gain access to her in the midst of her ministry; dressed himself in a woman's habit; but, by some mistake between him and his guide, when he came inside the house, he lost his way, and was detected among the female servants. The defence which Clodius made, when, by order of the senate, he was brought to trial, was to prove himself absent at the time of the fact; for which purpose he produced two men to swear that he was then at Interamna, about two or three days' journey from the city. But Cicero being called upon to give his testimony, deposed that Clodius had been with him that very morning at his house in Rome: a species of honesty to the public which Clodius never forgave. The first triumvirate was now formed; Pompey's chief effort was to obtain a confirmation of his acts by Cæsar in his consulship, which was now coming on; Cæsar, by giving way to Pompey's glory, to advance his own; and Crassus, to gain that ascendancy by the authority of Pompey and Cæsar, which he could not sustain alone. Cicero might have made what terms he pleased with the triumvirate, but he would not enter into any engagements with men whose union the friends of the republic abhorred. Clodius in the mean time being chosen tribune, began to threaten Cicero with the terrors of his office, and both Cæsar and Pompey secretly favored the scheme. Cæsar wanted to distress him so far as to force him to a dependence on himself; for which end, while he was privately encouraging Clodius to pursue his plans, he proposed expedients to Cicero for his security; while Pompey gave him the strongest assurances that there was no danger, and that he would sooner be sacrificed himself than suffer him to be injured. Clodius, in the mean time, was pressing on the people several new laws, that he might introduce with better grace the banishment of Cicero; and having caused a decree to be enacted, that any one who had condemned a Roman citizen unheard should himself be banished, he soon after impeached Cicero upon that ground; and this great orator was now in consequence banished by the votes of the people 400 miles from Italy; his houses ordered to be demolished, and his goods set up to sale. Within three months, however, his return was moved for, and carried in so triumphant a manner, that he had reason, he says, to fear, lest it should be imagined that he had contrived his late flight for the sake of so glorious a restoration. He was at this time in his fiftieth year. But he had, about this time, domestic grievances, which touched him very nearly; they arose chiefly from the petulant humor of his wife, which began to give him frequent occasions of chagrin; and, by a series of repeated provocations, confirmed in him that settled disgust, which at last ended in a divorce. In the fifty-sixth year of his age, he was made proconsul of Cilicia; where his administration gained him great honor. About this time the expectation of a breach between Cæsar and Pompey engaged the general attention. Cicero clearly foresaw, that, which side soever got the better, the war must necessarily end in tyranny. The only difference, he said, was, that if their enemies conquered, they should be proscribed; if their friends they would be slaves. He no sooner arrived at the city, than he found the war in effect proclaimed: for the senate had just voted a decree, that Cæsar should disband his army by a certain day, or be declared an enemy; and Cæsar's sudden march towards Rome confirmed it. In the midst of this confusion, Cæsar was extremely solicitous to conciliate Cicero, or at least to prevail with him to stand neuter; but our orator embarked to follow Pompey, who had been obliged to quit Italy some time before, and was then at Dyrrhachium. After the battle of Pharsalia Cicero returned into Italy, and was received into great favor by Cæsar, who was now declared dictator the second time. It appears from his letters, that Cicero was not a little discomposed at the thoughts of an interview with a conqueror, against whom he had been in arms; for though he might expect a kind reception, yet he hardly thought his life, he says, worth begging; since what was given by a master might always be taken away at pleasure. Cicero was now in his sixty-first year, and the want of ease and quiet at home was no longer tolerable. In addition to his divorce he was visited soon after by a new calamity in the death of his beloved daughter Tullia, who died in child-bed soon after her divorce from her third husband. His affliction for her death was so great, that he removed to Atticus's house, to shun company, and lived for some time chiefly in his library. Finding, however, his residence here too public, he retired to Asturia, near Antium; a little island on the Latin shore, covered with woods and groves. In this retreat he drew up the gravest of those philosophical pieces which are still extant in his works.

Upon the death of Cæsar, Octavius his heir came to Cicero, with the strongest professions of being governed entirely by his direction. The orator was still prosecuting his studies with his usual application; and, besides some philosophical pieces, now finished his book De Officiis, on the duties of man, for the use of his son; a work admired by all succeeding ages as the most perfect system of heathen morality. Cicero unwillingly renewed his attention to public affairs; and all the vigor of the last measures of the republic was entirely owing to his counsels. This appears from the memorable philippics which from time to time he published against Antony. But all was in vain; for, though Antony's army was entirely defeated at the siege of Modena, yet the death of the consuls Pansa and Hirtius in that action, gave the fatal blow to Cicero's plans, and was the immediate cause of the ruin of the commonwealth. Octavius, having brought over the senate, marched towards Gaul to meet Antony and Lepidus, who had already passed the Alps, in order to have a personal interview with him. They met in a small island formed by the Rhine, about two miles from Bononia, and spent three days in adjusting their plans, and the proscription of their enemies. Cicero was at his Tusculan villa, when he first received the news of himself being included in the proscription, upon which he set forward to the sea side and embarked; but, the wind being adverse, he was obliged to land after he had sailed about two leagues, and spent a night on shore. Importuned by his servants, he went on board a second time, but was again obliged to land, and went imprudently to a country seat of his, a mile from the coast. They had scarcely departed from this place in the morning, when the assassins, sent by [illegible] arrived; and, perceiving him to be fled, [illegible] and overtook him in a wood near the [illegible] Their leader was one Popilius Lænas, a [illegible] whose life Cicero had formerly defended [illegible] saved. As soon as the soldiers appeared, [illegible] servants prepared to defend their master's [illegible] the hazard of their own; but Cicero [illegible] them to set him down from his litter and [illegible] no resistance. His head and hands were [illegible] barbarously cut off and carried to their [illegible] ployer, Antony, who is said to have [illegible] them with joy, to have rewarded the [illegible] with a large sum of money, and ordered [illegible] to be fixed upon the rostra between the two [illegible] Cicero's death happened on Dec. the 7th, [illegible] sixty-fourth year of his age, about ten days [illegible] the settlement of the first triumvirate; and [illegible] him expired the short empire of eloquence [illegible] the Romans. He is thus characterised by Dr. [illegible] 'In all his orations his art is conspicuous. [illegible] begins commonly with a regular exordium; [illegible] with much address prepossesses the hearers, [illegible] studies to gain their affections. His method [illegible] clear, and his arguments are arranged with [illegible] propriety. In a superior clearness of method [illegible] has an advantage over Demosthenes. Every [illegible] appears in its proper place. He never [illegible] move till he has attempted to convince; [illegible] moving, particularly the softer passions, [illegible] highly successful. No one ever knew the [illegible] of words better than Cicero. He rolls them [illegible] with the greatest beauty and magnificence; [illegible] in the structure of his sentences is eminently [illegible] rious and exact. He is always full and [illegible] never abrupt. He amplifies every thing; [illegible] though his manner is generally diffuse, it is [illegible] happily varied and accommodated to the [illegible] When an important public object roused [illegible] mind, and demanded indignation and force, [illegible] departs considerably from that loose and [illegible] matory manner to which he at other times [illegible] dicted, and becomes very forcible and vehement. This great orator, however, is not without [illegible] defects. In most of his orations there is [illegible] much art, even carried to a degree of ostentation. He seems often desirous of obtaining admiration rather than of operating conviction. He is sometimes, therefore, showy rather than solid, and diffuse where he ought to have been urgent. His sentences are always round and sonorous. They cannot be accused of monotony, since they possess variety of cadence; but from too great a fondness for magnificence, he is on some occasions deficient in strength. Though the services which he had performed to his country were very considerable, yet he is too much his own panegyrist. Ancient manners, which imposed fewer restraints on the side of decorum, may in some degree excuse, but cannot entirely justify, his vanity.' The most celebrated editions of Cicero's works are that of Minutianus, 1498, Milan, 4 vols. [illegible] P. Manutius, 1541, Venice, 10 vols. 8vo.; R. Stephens, Paris, 8 vols. 8vo. 1543; Elzevir, Leyden, 1642, 10 vols. 8vo.; Gronovius, 11 vols. 12mo. and 4 vols. 4to; Verburgius, Amsterdam, [illegible] 2 vols. folio; Ernest, Leipsic, 8 vols. 8vo., [illegible] Olivet, Paris, 1740, 9 vols. 4to; and [illegible] 10 vols. 4to; Foulis, Glasgow, 1749, 20 [illegible]

2mo. : Lallemande, Paris, 1768, 12 vols. 12mo.

CICHORIUM, Succory, a genus of the polygamia æqualis order, and syngenesia class of plants; natural order, forty-ninth compositæ. Receptacle a little paleaceous: CAL. calyculated: pappus almost quinquedentated, and indistinctly hairy. There are five species, the most noted are, 1. C. endivia, or annual succory, with broad crenated leaves. This species may be considered both as an annual and biennial plant. If sown early in the spring, or even any time before the beginning of June, the plants very commonly fly up to seed the same summer, and perish in autumn. If sown in June and July, they acquire perfection in autumn, continue till the next spring, then shoot up stalks for flowers and seed, and soon after perish. The inner leaves are the useful parts. These when blanched white to render them crisp and tender, and reduce them from their natural strong taste to an agreeably bitter one, are then fit for use. They are valued chiefly as ingredients in autumn and winter sallads, and for some culinary uses. In November or December, when hard weather is approaching, let a piece of light ground, that lies warm, be trenched up in one or more sharp ridges two or three feet wide at bottom, and nearly as much in height, sideways to the sun, making the sides as steep as possible, that the wet may run quickly off; then, in a dry day, take up a quantity of the full-grown plants, with the roots entire, and divesting them of damaged leaves, gather each plant close in your hand, placing them horizontally in the sunny side of the ridge of earth almost to their tops, and about six or eight inches each way distant. In severe frost it will be proper to bestow some covering on the plants. The qualities of the endive are nearly of the same kind with those of the wild succory. The seeds are ranked among the four lesser cold ones. 2. C. intybus, wild succory, grows naturally by the sides of roads, and in shady lanes, in many places of Britain. It sends out long leaves from the roots, from between which the stalks arise, growing to the height of three or four feet, and branching out into smaller ones. The flowers come out from the sides of the stalks, and are of a fine blue color. They are succeeded by oblong seeds covered, enclosed in a down. The roots and leaves are articles of the Materia Medica. The former have a moderately bitter taste; with some degree of roughness; the leaves are somewhat less bitter; and the darker colored and more deeply jagged they are, the bitterer is their taste. Wild succory is an useful detergent, aperient, and attenuating medicine, acting without much irritation, tending rather to cool than to heat the body; and, at the same time, corroborating the tone of the intestines. All the parts of the plant, when wounded, yield a milky saponaceous juice. This when taken in large quantities, so as to keep up a gentle diarrhœa, and continued for some weeks, has been found to produce excellent effects in scorbutic and other chronical disorders. 3. C. spinosum, with a prickly forked stalk, grows naturally on the sea-coasts in Sicily, and the islands of the Archipelago. It sends out from the root many long leaves which are indented on their edges, and spread flat on the ground; from between these arise the stalks, which have very few leaves, and those are small and entire; the stalks are divided in forks upward, and from between them come out the flowers, which are of a pale blue color, and are succeeded by seeds shaped like those of the common sorts. The ends of the smaller branches are terminated by star-like spines which are very sharp.

CICHORA'CEOUS, *adj.* from Lat. *cichorium.* Having the qualities of succory.

> Diureticks evacuate the salt serum; as all acid diureticks, and the testaceous and bitter *cichoraceous* plants. *Floyer.*

CICH'-PEASE, *n. s. cicer.* A plant.

CICINDELA, the sparkler, in zoology, a genus of insects belonging to the order of coleoptera. The antennæ are setaceous; the jaws are prominent, and furnished with teeth: the eyes are a little prominent; and the breast is roundish and marginated. There are sixty species. They are in general very beautiful, and merit the attention of the curious in their microscopic observations; some are minute, though not inferior in splendor, therefore best suited for the amusement. The larvæ of all this genus live under ground; and are, as well as the perfect insects, fierce in their nature, attacking and destroying all they can overcome. C. campestris, the field sparkler, is one of the most beautiful of the genus. The upper part of its body is of a fine green colour, rough, and rather bluish. The under side, the legs and antennæ, are of a sho color, gold and red, of a copperish cast. The eyes are very prominent, and give the head a broad appearance. The thorax is angular, and narrower than the head: which constitutes the character of the cicindelæ. It is rough, and of a green color tinged with gold, as well as the head. The elytra are delicately and irregularly dotted. Each of them has six white spots, viz. one on the top of the elytrum, at its outward angle; three more along the outward edge, of which the middlemost forms a kind of lunula; a fifth on the middle of the elytra, opposite the lunula; and that one is broader, and tolerably round; and a sixth at the extremity of the elytra. There is also sometimes seen a black spot on the middle of each elytrum, opposite to the second white spot. The upper lip is also white, as is the upper side of the jaws, which are very prominent and sharp. This insect runs with great swiftness, and flies easily. It is found in dry sandy places, especially in the beginning of spring. In the same place its larva is met with, which resembles a long, soft, whitish worm, armed with six legs, and a brown scaly head. It makes a perpendicular round hole in the ground, and keeps its head at the entrance of the hole to catch the insects that fall into it; a spot of ground is sometimes entirely perforated in this manner.

CICISBEO, an Italian term, which signifies a whisperer; and has been bestowed in Italy on lovers in general, but chiefly on those who attend on married ladies. This custom, originally Italian, is by no means confined to Italy, having gained ground not only in the effeminate countries of Europe, but among the hardy Austrians, and even among the Spaniards.

CICONES, an ancient people of Thrace near the Hebrus. Ulysses at his return from Troy conquered them, and plundered their chief city Ismarus. They tore to pieces Orpheus for his obscene indulgencies.

CI'CURATE, *v. a.* } Lat. *cicuro*. To tame,
CICURA'TION, *n. s.* } to reclaim from wildness; the act of taming and rendering tractable the wild and the ferocious.

Poisons may yet retain some portion of their natures; yet are so refracted, *cicurated*, and subdued, as not to make good their destructive malignities. *Browne's Vulgar Errours.*

This holds not only in domestick and mansuete birds, for then it might be the effect of *cicuration* or institution; but in the wild. *Ray on the Creation.*

CICUTA, in antiquity, properly signifies an hollow intercepted between two knots, of the stalks or reeds of which the ancient shepherds used to make their pipes. Cicuta is also used, chiefly among the ancients, for the juice expressed from the water hemlock, the common poison wherewith the state criminals at Athens were put to death. Some say, that this poisonous draught was an inspissated juice compounded of the juice of cicuta and some other corrosive herbs. Socrates drank the cicuta. Plato, in his dialogue on the Immortality of the Soul, observes, that 'the executioner advised Socrates not to talk, for fear of causing the cicuta to operate too slowly.' M. Petit, in his Observationes Miscellaneæ, remarks, that this warning was not given by the executioner out of humanity, but to save the cicuta: for he was only allowed so much poison per annum, which, if he exceeded, he was to furnish at his own expense. This construction is confirmed by a passage in Plutarch; the executioner who administered the cicuta to Phocion, not having enough, Phocion gave him money to buy more; observing by the way, 'that it was odd enough, that at Athens a man must pay for everything, even for his own death.'

CICUTA, in botany, water hemlock, a genus of the order digynia, and pentandria class of plants; natural order forty-fifth, umbellatæ. Fruit subovate grooved, florets uniform. There are three species; viz. 1. C. bulbifera. 2. C. maculata: and 3. C. virosa. This last species is the only one remarkable, and that from the poisonous qualities of its roots, which have been often known to destroy children who ate them for parsnips.

CID (Roderigo Dias le), a Castilian officer who was very successful against the Moors, under Ferdinand II. king of Castile; but whose name would hardly have been remembered, if Corneille had not made his passion for Chimene the subject of an admired tragedy, founded on a simple but affecting incident. Le Cid is desperately in love with Chimene, daughter of the Count de Gomes; but he is at variance with the count; and being challenged by him kills him in a duel. The conflict between love and honor in the breast of Chimene, who at length pardons and marries the Cid, forms the beauty of the piece. He died in 1089.

CIDARIS, in antiquity, the mitre used by the Jewish high priests. The Rabbins say, that the bonnet used by the priests in general was made of a piece of linen cloth, sixteen yards long, which covered their heads like a helmet or turban: and they allow no other difference between the high priest's bonnet and that of other priests than that the one is flatter, and more in the form of a turban; whereas that worn by other priests rose something more in a point.

CI'DER, *n. s.* } Fr. *cidre*; Ital. [illegible]
CI'DERIST, *n. s.* } Lat. *sicera*; [illegible]
CI'DERKIN, *n. s.* } The Latin *sicera* was general name for liquor made of grain, or any fruit except the grape; but this sense of the word cyder is now wholly obsolete. It designates liquor made of the juice of fruits pressed. In its precise sense is the juice of apples expressed and fermented. Ciderist is a maker of cider; and ciderkin, a gross and inferior liquor made of the apples after the cider is pressed out.

We had also drink, wholesome and good wine of the grape, a kind of *cider* made of a fruit of that country; a wonderful pleasing and refreshing drink. *Bacon.*

To the utmost bounds of this
Wide universe, Silurian *cider* born,
Shall please all tastes, and triumph o'er the vine. *Philips.*

A low word used for the liquor made of the murk or gross matter of apples, after the *cider* is pressed out, and a convenient quantity of boiled water added to it; the whole infusing for about forty-eight hours. *Id. World of Words.*

Ciderkin is made for common drinking, and supplies the place of small beer. *Mortimer.*

When the *ciderists* have taken care for the best fruit, and ordered them after the best manner they could, yet hath their *cider* generally proved pale, sharp, and ill-tasted. *Id.*

Come, let us hie, and quaff a cheery bowl,
Let *cyder* new wash sorrow from thy soul. *Gay.*

CIDER. See CYDER.

CIEL'ING, *n. s.* See CEILING.

CIENFUEGA, in botany, a genus of plants, class monadelphia, order dodecandria: cal. double; the outer of twelve setaceous leaves: petals five; style filiform; stigma clavate: caps. three-celled, three-seeded. One species only, a native of Senegal.

CIERGE, *n. s.* Fr. A candle carried in processions.

CIEUX, a town of France, in the department of Upper Vienne, and chief place of a canton, in the district of Bellac, containing about 2000 inhabitants. It is thirteen miles north-west of Limoges.

CIGNANI (Charles), an Italian painter, born at Bologna in 1628; and the disciple of Albani. He was much esteemed by pope Clement XI, who nominated him prince of the Academy of Bologna, and loaded him with favors. He died at Forli in 1719. The cupola of Madona del Focca at Forli, in which he represented Paradise, is his principal work. His finest pictures are at Rome, Bologna, and Forli.

CI'LIARY, *adj.* Lat. *cilium*. Belonging to the eyelids.

The *ciliary* processes, or rather the ligaments, observed in the inside of the sclerotick tunicles of the eye, do serve instead of a muscle, by the contraction, to alter the figure of the eye. *Ray on the Creation.*

CILIATED Leaf, among botanical writers, one surrounded with parallel filaments, somewhat like the hairs of the eye-lids.

CILICIA, an ancient kingdom of Asia, lying between 36° and 40° N. lat., bounded on the east by Mount Amanus, which separates it from Syria; on the west by Pamphylia; on the north by Isauria, Cappadocia, and Armenia Minor; and by the Mediterranean Sea on the south. It was so surrounded by steep and craggy mountains, particularly the Taurus and Amanus, as to be easily defended by a handful of resolute men against a numerous army. The three narrow passes leading into it, were called Pylæ Ciliciæ, or the gates of Cilicia, viz. the Pass of Mount Taurus on the side of Cappadocia; the Pass of Mount Amanus; and the Pass of Syria. Its principal rivers were the Cydnus and the Pyramus. According to Josephus, Cilicia was first peopled by Tarshish the son of Javan, and his descendants, whence the whole country was named Tarsus. The ancient inhabitants were in process of time driven out by a colony of Phœnicians, who, under Cilix, first settled in the island of Cyprus, and from thence passed into the country which, from their leader, they called Cilicia. Afterwards, several other colonies from different nations settled in this kingdom, particularly from Syria and Greece; whence the Cilicians in some places used the Greek tongue, in others the Syriac; but the former greatly corrupted by the Persian, the predominant language of the country being a dialect of that tongue. We find no mention of the kings of Cilicia after their settlement in that country, till the time of Cyrus, to whom they voluntarily submitted, continuing subject to the Persians till the overthrow of that empire; but governed to the time of Artaxerxes Memnon by kings of their own nation. After the downfal of the Persian empire, Cilicia became a province of Macedon; and, on the death of Alexander, fell to the share of Seleucus, and continued under his descendants till it was reduced to a Roman province by Pompey. As a proconsular province, it was first governed by Appius Claudius Pulcher; and after him by Cicero, who reduced several strong holds on Mount Amanus, in which some Cilicians had fortified themselves, and held out against his predecessor. On this occasion Cilicia was divided into Trachæa and Campestris.

Cilicia Campestris, according to Ammianus Marcellinus, was one of the most fruitful countries of Asia: but the western part was very barren, though famous for an excellent breed of horses. The air in the inland parts is reckoned wholesome; but that on the sea-coast is dangerous, especially to strangers. This part of Cilicia was made a Roman province, and called Cilicia prima.

Cilicia Trachæa, was governed by kings appointed by the Romans, till the reign of Vespasian, when, the family of Tracondementus being extinct, it was made a province of the empire, and was divided into Cilicia Secunda, comprehending the coast of Cilicia Trachæa, and Isauria, containing the inland parts. It is now a province of Asiatic Turkey; and is called Caramania, having been the last province of the Caramanian kingdom which held out against the Ottoman race. It was called Τραχεια, aspera or stony, from its abounding with stones; and the whole province is still called by the Turks, Tas Wileieth, or The Stony Province.

Cilicia Terra, in ancient natural history, a bituminous substance, improperly called an earth, which, by boiling, became tough like birdlime, and was used instead of that substance, to cover the stock of the vines for preserving them from worms. It probably served in this office in a sort of double capacity, driving away these animals by its nauseous smell, and entangling them if they chanced to get amongst it.

CILI'CIOUS, *adj.* from Lat. *cilicium*, haircloth. Made of hair.

> A garment of camel's hair, that is, made of some texture of that hair; a coarse garment, a *cilicious* or sackcloth habit, suitable to the austerity of his life.
>
> *Browne's Vulgar Errours.*

CILICIUM, in Hebrew antiquity, a sort of habit made of coarse stuff, formerly in use among the Jews in times of mourning and distress. It is the same with what the Septuagint and Hebrew versions call sackcloth.

CILLEY, or Zilli, an old town and district of Germany, in the circle of Lower Stiria, on the river Saan; the district extends as far as Petaw, containing 1430 square miles, and 175,000 inhabitants. It was once an independent principality, and governed by counts of its own. The town is said to have been founded by the Romans, but was destroyed; it was afterwards rebuilt by the duke of Moravia. It has some trade, but does not contain above 1000 inhabitants. The Saan becomes navigable here. Cilley lies fifty-eight miles south by west of Gratz, and 130 S.S.W. of Vienna.

CIMABUE (Giovanni), a renowned painter, born at Florence in 1240, and the first who revived the art in Italy. He painted, according to the custom of those times, in fresco and in distemper; oil colors not being then discovered. He excelled in architecture as well as in painting; and was concerned in the building of Sancta Maria del Fior at Florence: during which employment he died at the age of sixty.

CIMAR. See Simar.

CIMBRI, or Cimbrians, an ancient Celtic nation, who inhabited the northern parts of Germany. They are said to have been descended from the Asiatic Cimmerians, and to have taken the name of Cimbri when they changed their old habitations. When they first became known, they inhabited chiefly the peninsula, now called Jutland, and by the ancients Cimbrica Chersonesus. About 113 years before Christ, they left their peninsula with their wives and children; and joining the Teutones, a neighbouring nation, took their journey southward in quest of a better country. They first fell upon the Boii, a Gaulish nation, situated near the Hercynian forest. Here they were repulsed, and obliged to move nearer the Roman provinces. The republic being then alarmed at the approach of such multitudes of barbarians, sent an army against them under the consul Papirius Carbo. On the approach of the Roman army, the Cimbri made proposals of peace. The consul pretended to accept these; but having thrown them into a disadvantageous situ tion, he treacherously attacked their camp. His perfidy was rewarded as it deserved; the Cimbri ran to arms, and not only repulsed the Romans, but, attacking them in their turn, utterly defeated them, and obliged the shattered remains of their forces to conceal themselves in the neighbouring forests. After this victory the Cimbri entered Transalpine Gaul, which they quickly filled with slaughter and desolation. Here they continued five or six years, when another Roman army, under the consul Silanus, marched against them. This general met with no better success than his predecessor. His army was routed at the first onset; in consequence of which, all Narbonne Gaul was exposed at once to the ravages of these barbarians.

About A A.C. 105, the Cimbri began to threaten the Roman empire itself with destruction. The Gauls marched from all parts with a design to join them and invade Italy. The Roman army was commanded by the proconsul Cæpio, and the consul Mallius; but as these two commanders were at variance, they separated and divided their forces. This proved the ruin of the whole army. The Cimbri immediately fell upon a strong detachment of the consular army commanded by M. Aurelius Scaurus, which they cut off to a man, and made Scaurus himself prisoner. Mallius being greatly intimidated by this defeat, desired a reconciliation with Cæpio, but was haughtily refused. He moved nearer the consul, however, with his army, that the enemy might not be defeated without his having a share in the action. The Cimbri by this movement, imagining the commanders had made up their quarrel, sent ambassadors to Mallius with proposals of peace. As they were obliged to pass through Cæpio's camp, he ordered them to be brought before him; but, finding they were empowered to treat only with Mallius, he could scarcely be restrained from putting them to death. His troops, however, forced him to confer with Mallius about the proposals sent. The deputies on their return acquainting their countrymen that the misunderstanding between the Roman commanders still subsisted, the Cimbri attacked the camp of Cæpio, and the Gauls that of Mallius. Both were forced, and the Romans slaughtered without mercy. Eighty thousand citizens and allies of Rome, with 40,000 servants and sutlers, perished on that fatal day; in short, of the two Roman armies only ten men, with the two generals, escaped to carry the news of so dreadful a defeat. The conquerors destroyed all the spoil, pursuant to a vow they had made. The gold and silver they threw into the Rhone, drowned the horses they had taken, and put to death all the prisoners. The Romans were thrown into the utmost consternation on the news of so terrible an overthrow. They saw themselves threatened with a deluge of Cimbri and Gauls, numerous enough to overrun the whole country. They did not, however, despair. A new army was raised with incredible expedition; no citizen whatever who was fit to bear arms being exempted. On this occasion also, fencing masters were first introduced into the Roman camp; by which means the soldiers were soon rendered in a manner invincible. Marius, who was at that time in high reputation on account of his victories in Africa, was chosen commander, and waited for the Cimbri in Transalpine Gaul; but they had resolved to enter Italy by two different ways; the Cimbri over the eastern, and the Teutones and other allies over the western Alps. The Roman general therefore marched to oppose the latter, and defeated the Ambrones and the Teutones with great slaughter. The Cimbri, in the mean time, entered Italy, and struck the whole country with terror. Catulus and Sylla attempted to oppose them; but their soldiers were so intimidated by the terrible appearance of these barbarians, that nothing could prevent their flying before them. The city of Rome was now totally defenceless; and, had the Cimbri only marched forwards, they had undoubtedly become masters of it; but they waited in expectation of being joined by their allies, not having heard of their defeat by Marius, till the senate had time to recal him to their defence. By their order he joined his army to that of Catulus and Sylla. The Roman army now consisted of 52,300 men. The cavalry of the Cimbri were not more than 15,000, but their foot seemed innumerable; for, being drawn up in a square, they are said to have covered thirty furlongs. The Cimbri attacked the Romans with the utmost fury; but, being unaccustomed to bear the heats of Italy, they began to lose their strength, and were easily overcome. But they had put it out of their power to fly; for, that they might keep their ranks, they are said, like true barbarians, to have tied themselves together with cords. The battle was therefore only a most terrible butchery; 120,000 were killed on the field of battle, and 60,000 taken prisoners. The victorious Romans now marched on the enemy's camp; where they had a new battle to fight with the women, whom they found more fierce than even their husbands had been: but the greater part hanged themselves on the neighbouring trees. The country of the Cimbri, which, after this terrible catastrophe, was left a mere desert, was again peopled by the Scythians.

CIMBRICA CHERSONESUS. See CHERSONESUS.

CIMBRISHAM, a decayed sea-port of Sweden, on the Baltic, in the province of Schonen, Gothland. From this place, and the adjacent country, the ancient Cimbri emigrated. It is twenty-four miles south of Christianstadt.

CIME'LIARCH, *n. s.* from κειμηλιαρχης. The chief keeper of plate, vestments, and things of value, belonging to a church; a church-warden.

CI'METER, *n. s.* Span. and Port. *cimitarra*, from Turk. *chimeteir*. A sort of sword used by the Turks, short, heavy, and recurvated, or bent backward. This word is sometimes erroneously spelt *scimitar*, and *scymiter*; as in the following examples.

> By this *scimitar*,
> That slew the sophy and a Persian prince,
> That won three fields of sultan Solyman.
>
> *Shakspeare.*
>
> Our armours now may rust, our idle *scimiters*
> Hang by our sides for ornament, not use. *Dryden.*

CIMEX, the bug, in zoology, a genus of insects belonging to the order of hemiptera. The rostrum is inflected. The antennæ are longer than the thorax. The wings are folded together crosswise; the upper ones are coriaceous from their base towards their middle. The back is flat; the thorax marginated. The feet are formed for running. This genus is divided into different sub-divisions, as follows: 1. Those without wings. 2. Those in which the escutcheon is extended so far as to cover the abdomen and the wings. 3. The coleoptrati, whose elytra are wholly coriaceous. 4. Those whose elytra are membranaceous; these are very much depressed, like a leaf. 5. In which the thorax is armed on each side with a spine. 6. Those which are of an oval form, without spines on the thorax. 7. In which the antennæ become setaceous towards their point. 8. Those of an oblong form. 9. Those whose antennæ are setaceous, and as long as the body. 10. Those which have their thighs armed with spines. 11. Those whose bodies are long and narrow. Linnæus enumerates no fewer than 121 species, to which several have been added by other naturalists. The larvæ of bugs only differ from the perfect insect by the want of wings; they run over plants; grow and change to chrysalids, without appearing to undergo any material difference. They have only rudiments of wings, which the last transformation unfolds, and the insect is then perfect. In the first two stages they are unable to propagate their species. In their perfect state, the female, fecundated, lays a great number of eggs, which are often found upon plants, placed one by the side of another; many of which, viewed through a glass, present singular varieties of configuration. Some are crowned with a row of small hairs, others have a circular fillet; and most have a piece which forms a cap; this piece the larvæ pushes off when it forces open the egg. Released from their prison, they overspread the plant on which they feed, extracting by the help of the rostrum the juices appropriated for their nourishment; even in this state the larvæ are voracious in an eminent degree, and spare neither sex nor species they can conquer. In their perfect state they glut themselves with the blood of animals: they destroy caterpillars and flies; and even the coleopterous tribe, whose hardness of elytra one would imagine was proof against their attacks, have fallen an easy prey to the sharp piercing nature of the rostrum of the bug, and the uncautious naturalist may experience a feeling proof of the severity of its nature.

1. C. lectularius, the house bug, is particularly acceptable to the palate of spiders in general, and is even sought after by wood bugs; which is not indeed surprising, when the general voracity of this genus is considered. The methods of expelling house bugs are various. See Bug, and Cimicifuga.

2. C. paradoxus is a very peculiar species, discovered by Dr. Sparrman at the Cape. He observed it as he sought for shelter at noon among the branches of a shrub. 'Though the air,' he says, 'was extremely still and calm, so as hardly to have shaken an aspen leaf, yet I thought I saw a little withered, pale, crumpled leaf, eaten as it were with caterpillars, fluttering from the tree. This appeared to me so very extraordinary, that I thought it worth my while suddenly to quit my verdant bower in order to contemplate it; and I could scarcely believe my eyes, when I saw a live insect, in shape and color resembling the fragment of a withered leaf, with the edges turned up and eaten away, as it were by caterpillars, and at the same time all over beset with prickles. Nature by this peculiar form has certainly extremely well defended and concealed, as it were in a mask, this insect from birds and its other diminutive foes; in all probability, with a view to preserve it, and employ it for some important office in the system of her economy; a system with which we are too little acquainted, in general too little investigate, and, in every part of it, can never sufficiently admire, with that respect and veneration which we owe to the great author of nature and ruler of the universe.'

CIMICIFUGA, in botany, a genus of the polyandria order, and diœcia class of plants. Male cal. almost pentaphyllous: cor. none: stamina, twenty in number. Female cal. almost pentaphyllous: cor. none: the stamina twenty and barren: cap. from four to seven, polyspermous: species, one only. Viz. C. fœtida, bearing a thyrsis of yellow male flowers with a red villous seed, the seed vessel in form of a horn. This whole plant so resembles the actea racemosa, that it is difficult to distinguish them when not in flower; but in the fructification it greatly differs from it, the cimicifuga having four pistils, the actea but one. Jacquin says, that it is a native of the Carpathian mountains. It has obtained the name of cimicifuga, or bugbane, both in Siberia and Tartary, from its property of driving away those insects; and the botanists of those parts of Europe, which are infested by them, have long desired to naturalise it in their several countries. Gmelin mentions, that in Siberia the natives also use it as an evacuant in dropsy; and that its effects are violently emetic and drastic.

CIMMERII, an ancient people near the Palus Mæotis. They invaded Asia Minor, 1284 years before Christ, and seized on the kingdom of Cyaxares. After they had been masters of the country for twenty-eight years, they were driven back by Alyattes king of Lydia.

Cimmerii, another ancient nation, on the western coast of Italy. The country which they inhabited was supposed to be so gloomy, that, to express a great obscurity, the expression of Cimmerian darkness has proverbially been used; and Homer, according to Plutarch, drew his images of hell and Pluto from the gloomy and dismal country where they dwelt. See Cimmerium.

CIMMERIUM, in ancient geography, a town at the mouth of the Palus Mæotis; from which the Bosphorus Cimmerius is named; that strait which joins the Euxine and the Palus Mæotis. And here stood the Promontorium Cimmerium; and hence probably the modern appellation Crim.

Also a place near Baiæ, in Campania, where formerly stood the cave of the sibyl. The people lived in subterraneous habitations, from which they issued in the night to commit robberies and other acts of violence, and thus never saw the light of the sun. To give a natural account of this fable, Festus says, there was a valley surrounded by a pretty high-ridge, which precluded the morning and evening sun.

CIMOLA, or Cimolia Terra, in natural history, Fullers' earth. See Clay and Fullers' Earth.

Cimolia Alba, the officinal name of the earth of which we now make tobacco-pipes. Its distinguishing characters are, that it is a dense, compact, heavy earth, of a dull white color, and very close texture; it will not easily break between the fingers, and slightly stains the skin in handling. It adheres firmly to the tongue; melts very slowly in the mouth, and is not readily diffusible in water. It is found in many places. That of the Isle of Wight is much esteemed for its color. Great plenty of it is found near Poole in Dorsetshire, and near Wednesbury in Staffordshire.

Cimolia Nigra, is of a dark lead color, hard, dry, and heavy; of a smooth compact texture, and not viscid: it does not color the hands; crumbles when dry; adheres to the tongue; diffuses slowly in water; and is not acted upon by acids. It burns perfectly white, and acquires a considerable hardness. The chief pits for this clay are near Northampton, where it is used in the manufacture of tobacco-pipes. It is also mixed with the critche clay of Derbyshire, in the proportion of one part to three, in the manufacture of the hard reddish brown ware.

Cimolia Terra, in natural history, a name by which the ancients expressed a very valuable medicinal earth; but which latter ages have confounded with tobacco-pipe clay and Fullers' earth. The cimolia terra of the ancients was found in several of the islands of the Archipelago: particularly in the islands of Cimolus whence it has its name. It was used with great success in the erysipelas, inflammations, and the like, being applied by way of cataplasm to the part. They also used it, as we do Fullers' earth, for the cleansing of clothes. This earth of the ancients, though so long disregarded, and by many supposed to be lost, is yet very plentiful in Argentiere, Siphanto, and many of those islands. It is a marl of a lax and crumbly texture, and a pure bright white color, very soft to the touch. It adheres firmly to the tongue; and, if thrown into water, raises a little hissing and ebullition, and moulders to a fine powder. It makes a considerable effervescence with acids; and suffers no change of color in the fire. These are the characters of what the ancients called simply terra cimolia: but besides this, they had, from the same place, another earth which they called by the same general name, but distinguished as follows:

Cimolia Terra Purpurescens, the purple cimolia. This they describe to be fattish, cold to the touch, of a mixed purple color, and nearly as hard as a stone. And this was evidently the substance we call steatites, or the soap rock; common in Cornwall, and also in the island of Argentiere.

CIMOLUS, in ancient geography, one of the Cyclades, now called Argentiere. See Argentiere.

CIMON, a celebrated Athenian general, the son of Miltiades and Hegesipyle. He was famous for his debaucheries in his youth, and the reformation of his morals when arrived to years of discretion. He behaved with great courage at the battle of Salamis, and rendered himself popular by his munificence and valor. He defeated the Persian fleet, took 200 ships, and totally routed their land army, the very same day, A. U. C. 284. In his public character he behaved with unimpeached honesty, and as a private citizen he dedicated his wealth to the most excellent purposes. He demolished the enclosures about his grounds and gardens, permitting every one to enter and take what fruit they pleased; he kept an open table, where both rich and poor were plentifully entertained. He did not, however, concur with every measure of the commonality; and therefore the popular party determined to put him to death. The crime laid to his charge was, that by presents from the Macedonians he was prevailed upon to let slip a manifest opportunity of enlarging his conquests, after taking from the Persians the gold mines of Thrace: but Pericles though appointed to accuse him, spoke in such a manner, that it plainly appeared that he did not think him guilty; in consequence of which Cimon was only banished by the ostracism. He was afterwards recalled from his exile; and at his return he adjusted the dispute between Lacedæmon and his countrymen; after which he totally ruined the Persian fleet, A. U. C. 304. He died as he was besieging the town of Citium in Cyprus. He may be called the last of the Greeks whose spirit and boldness defeated the armies of the barbarians. He was such an inveterate enemy to the Persian power, that he formed a plan of totally destroying it; and in his wars he had so reduced the Persians, that they promised in a treaty, not to pass the Chelidonian islands with their fleet, or to approach within a day's journey of the Grecian seas. See Attica.

CINALOA, or Cinollo, a province of Mexico, in the southern part of the intendancy of Sonora. It is about 300 miles in length from south-east to north-west, and about 120 broad. It is bounded on the east by lofty mountains, on the west by the gulf of California, and to the north by a desert native country. Humboldt says it contains five towns, ninety-two villages, thirty parishes, fourteen farms, and 450 cottages. It has an extremely hot summer, and very cold December and January; but it seldom rains here.

CINCHONA, in botany, a genus of the monogynia order, belonging to the pentandria class of plants: cor. funnel-shaped, with a woolly summit: cap. inferior: bilocular, with a parallel partition. Species twelve, the chief are.

1. C. corymbifera, corymb-bearing cinchona, or white Peruvian bark, with oblong lanceolate leaves and axillary corymbs. This species particularly abounds in the hilly parts of Quito, growing promiscuously in the forests, and is spontaneously propagated from its seeds.

2. C. Jamaicensis is a native of the West India islands, particularly of Jamaica. In Jamaica it is called the sea-side beech, and grows from twenty to forty feet high. The white, furrowed, thick outer bark is not used; the dark brown inner bark has the common flavor, with a mixed taste, at first the horse radish and ginger, becoming at last bitter and astringent. It seems to give out more extractive matter than the cinchona officinalis. Some of it was imported from St. Lucia, in consequence of its having been used with advantage in the army and navy during the last war; and it has lately been treated of at considerable length by Dr. Kentish, under the title of St. Lucia's bark. When fresh it is a considerable emetic and cathartic, properties which it is said to lose by drying.

C. officinalis, or colored Peruvian bark, with elliptic leaves, downy underneath, and the leaves of the corolla woolly. Both the corymbifera and officinalis are natives of Peru, where they attain the height of from fifteen to twenty feet. They are both found in the province of Santa Fe. The bark has an odor, to some people not unpleasant, and very perceptible in the distilled water, in which floating globules, like essential oil, have been observed. Its taste is bitter and astringent, accompanied with a degree of pungency, and leaving a considerably lasting impression on the tongue. According to some, the Peruvians learned the use of the bark by observing certain animals affected with intermittents instinctively led to it; while others say, that a Peruvian having an ague, was cured by happening to drink of a pool, which, from some trees having fallen into it, tasted of cinchona; and its use in gangrene is said to have originated from its curing one in an aguish patient. About 1640 the lady of the Spanish viceroy, the Comitissa del Cinchon, was cured by the bark, which has there been called cortex, or pulvis Comitissæ cinchona. The medicinal properties of this drug are very considerable. It cures intermittent, remittent, nervous, and putrid fevers, putrid sore throats, scarlatina, and dysentery; stops excessive discharges, and is in general use as a tonic and stomachic; it is also of infinite service in local affections, as gangrene, scrofula, ill conditioned ulcers, rickets, scurvy, &c. and in most diseases where there is no inflammatory diathesis. The officinal preparations of this bark are the powder, the extract, the tincture, and the decoction.

CINCINNATI, a flourishing post town of the United States, in the north-western territory, and the present seat, says Mr. Scott, in his United States Gazetteer for 1795, of the American government. It is seated on the north side of the Ohio, opposite to the mouth of Licking river, and contained, at that period, about 200 houses. It has a fort, named Fort Washington, which is the grand magazine of stores for the western army, and is large enough to contain 300 men. Cincinnati is seventy miles north of George-town, eighty-two north by east of Frankfort, and 759 west by south of Philadelphia: from which it lies in lon. 9. 44. W., lat. 39. 7. N.

CINCINNATI, a society which was established in the United States of North America, soon after the peace of 1783, consisting of those generals and officers of the army and navy who had fought and triumphed together in the war of independence. The institution was intended to perpetuate the memory of the revolution, the friendship of the officers and the union of the States; and also to raise a fund for the relief of the widows and orphans of those officers who had fallen during the war. It was subdivided into state societies, which were to meet on the 4th of July, and, with other business, depute a number of their members to convene annually in general meetings. Each member was to subscribe one month's pay to the general treasury, and the fund was to be augmented by private donations. The interest only of the money thus raised was to be expended in acts of charity. The members were to be distinguished by wearing a medal, emblematical of the design of the society. The device, a bald eagle of gold, was suspended by a deep blue riband edged with white, descriptive of the union of America and France. The emblems borne on the breast of the eagle were: the principal figure, Cincinnatus, and three senators presenting him with a sword and other military ensigns: on a field in the back ground his wife standing at the door of the cottage, and near it a plough and other implements of husbandry; round the whole, 'Omnia reliquit servare rempublicam.' On the reverse, the sun rising, a city with open gates, and vessels entering the port; fame crowning Cincinnatus with a wreath, inscribed 'virtutis premium;' below, hands joining, supporting a heart, with a motto 'esto perpetua;' round the whole, 'Societas Cincinnatorum, instituta, A.D. 1783.' The honors and advantages of this society were to be hereditary in the line of the eldest male heirs, and in default of male issue, in that of the collateral male heirs. Honorary members were to be admitted, but without the hereditary advantages of the society, and provided their number should never exceed the ratio of one to four of the officers or their descendants.

General Washington subscribed himself in October 1783 president of the order. But considerable jealousy was excited against it among the stricter republicans of the union. The states of Pennsylvania, Massachusetts, and Rhode Island, publicly expressed their disapprobation of it; and the private correspondence of Dr. Franklin, lately published, contains one of his most acute and characteristic letters on the subject. 'Honor worthily obtained,' says he, 'is in its nature a personal thing, and incommunicable to any but those who had some share in obtaining it. Thus among the Chinese, the most ancient, and from long experience the wisest of nations, honor does not descend but ascends. If a man from his learning, his wisdom, or his valor, is promoted by the emperor to the rank of mandarin, his parents are immediately entitled to all the same ceremonies of respect from the people, that are established as due to the mandarin himself; on the supposition that it must have been owing to the education, instruction, and good example, afforded him by his parents, that he was rendered capable of serving the public. This ascending honor is therefore useful to the state, as it encou-

rages parents to give their children a good and virtuous education. But the descending honor, to a posterity who could have no share in obtaining it, is not only groundless and absurd, but often hurtful to that posterity, since it is apt to make them proud, disdaining to be employed in useful arts, and thence falling into poverty, and all the meannesses, servility, and wretchedness attending it; which is the present case with much of what is called the noblesse of Europe.

'The absurdity of descending honors is not a mere matter of philosophical opinion, it is capable of mathematical demonstration. A man's son, for instance, is but half of his family, the other half belonging to the family of his wife. His son, too, marrying into another family, his share in the grandson is but a fourth; in the great grandson, by the same process, it is but an eighth. In the next generation a sixteenth; the next a thirty-second; the next a sixty-fourth; the next an hundred and twenty-eighth; the next a two hundred and fifty-sixth; and the next a five hundred and twelfth; thus in nine generations, which will not require more than 300 years (no very great antiquity for a family), our present chevalier of the order of Cincinnatus's share in the then existing knight, will be but a 512th part; which, allowing the present certain fidelity of American wives to be insured down through all those nine generations, is so small a consideration, that methinks no reasonable man would hazard for the sake of it, the disagreeable consequences of the jealousy, envy, and ill-will of his countrymen.' He afterwards calculated that 1022 men and women will be contributors to the formation of this one future knight.

The Cincinnati, in their first general meeting convened at Philadelphia, May 3rd, 1784, new modelled the institution in regard to its hereditary character. They annulled the descent of its honors, disclaimed all interference with political subjects, and placed their funds under the immediate cognizance of the several legislatures, through the medium of a charter. Indeed they relinquished without hesitation every thing in their new constitution, except their personal friendships, their general meetings, and their funds: together with the acts of benevolence which it was their intention should flow from them.

CINCINNATUS (Titus Quinctius), a Roman hero, whose disinterested patriotism reflects eternal honor on his memory, as well as on his country, which he was thrice the means of saving. On the first of these occasions, the disputes between the senate and the people of Rome had run to such a height about the Agrarian law, that they were on the point of coming to an open rupture, when Cincinnatus, being elected dictator, and taken from his plough, by his wise counsels and prudent management, healed their differences and prevented the worst of calamities, a civil war. Some time after this, when the consul Minutius, with the whole Roman army, were surrounded and in danger of being cut off by the combined armies of the Æqui and Volsci, he was called forth a second time to be dictator; he conquered the enemies of Rome, and refusing all rewards, retired again to his farm, after he had been dictator only si teen days. The same circumstance occurred once more in the eightieth year of his age. He died A. A. C. 376. See Rome, History o

CI'NCTURE, *n. s.* Lat. *cinctura.* Something worn round the body. An enclosure.

Now happy he, whose cloak and *cincture*
Hold out this tempest. Shakspeare.

The court and prison being within the *cincture* of one wall. *Bacon's Henry VII.*

Columbus found the American so girt
With feathered *cincture*, naked else, and wild. *Milton.*

He binds the sacred *cincture* round his breast. *Pope.*

In architecture, a ring or list at the top and bottom of the shaft of a column; separating the shaft at one end from the base, at the other from the capital. It is suposed to be in imitation of the girths or ferrils, anciently used to strengthen and preserve the primitive wood columns.

CI'NDER, *n. s.*
CI'NDER-WENCH, *n. s.*
CI'NDER-WOMAN, *n. s.* } Lat. *cinis*; Ital. *cenere*; Fr. *cendre*; Sax. *sinder.* Hot coal that has ceased to flame; a mass ignited and quenched without being reduced to ashes. A trade in cinders, or one who collects them for others. A cinder-wench is a cinder-raker.

I should make very forges of my cheeks,
That would to *cinders* burn up modesty,
Did I but speak thy deeds! *Shakspeare.*

There is in smith's *cinders*, by some adhesion of iron, sometimes to be found a magnetical operation. *Browne.*

They fondly thinking to allay
Their appetite with gust, instead of fruit
Chewed bitter ashes, which the offended taste
With spattering noise rejected: oft they essayed,
Hunger and thirst constraining; drugged as oft
With hatefullest disrelish writhed their jaws
With soot and *cinders* filled. *Milton.*

So snow on Ætna does unmelted lie,
Whose rolling flames and scattered *cinders* fly. *Waller.*

If from adown the hopeful chops
The fat upon a *cinder* drops,
To stinking smoke it turns the flame. *Swift.*

'Tis under so much nasty rubbish laid,
To find it out's the *cinder-woman's* trade. *Essay on Satire.*

She had above five hundred suits of fine clothes, and yet went abroad like a *cinder-wench.* *Arbuthnot's History of John Bull.*

In the black form of *cinder-wench* she came,
When love, the hour, the place, had banished shame. *Gay.*

CINERA'TION, *n. s.* from Lat. *cineres.* The reduction of anything by fire to ashes. A term of chemistry.

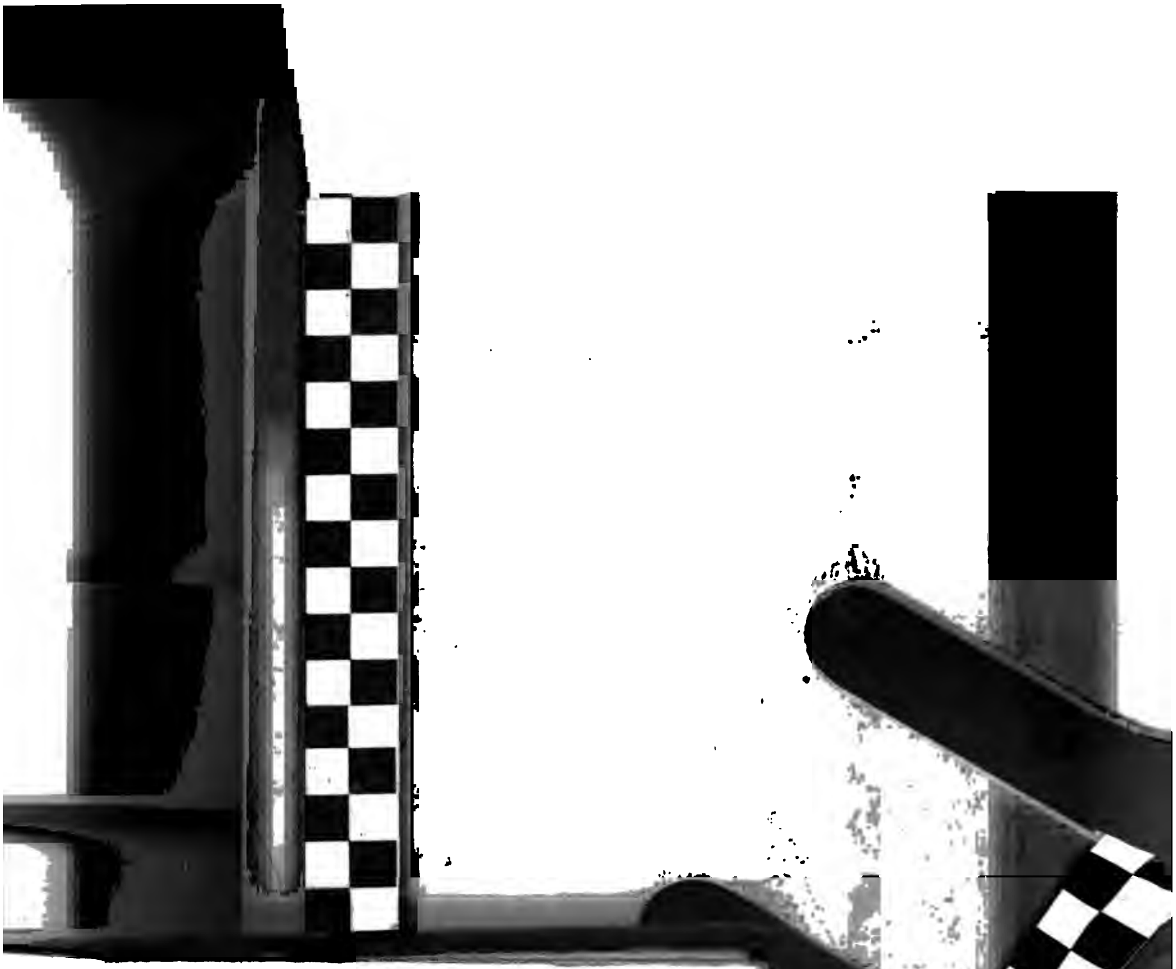
CINERI'TIOUS, *adj.* Lat. *cinericius.* Having the form or state of ashes.

The nerves arise from the glands of the *cineritious* part of the brain, and are terminated in all parts of the body. *Cheyne.*

CINE'RULENT, *adj.* from Lat. *cineres.* Full of ashes.

CI'NGLE, *n. s.* from Lat. *cingulum.* A girth for a horse.

CINNA (Caius Helvius), a poet intimate with Cæsar. He went to attend the obsequies of Cæsar, and, being mistaken by the populace for another Cinna, he was torn to pieces.



Cinna (Lucius Cornelius), a Roman who oppressed the republic with his cruelties. He was banished by Octavius for attempting to make the fugitive slaves free. He joined with Marius, and with him at the head of the slaves he defeated his enemies, and got himself made consul a fourth time. He massacred so many citizens at Rome, that his name become odious; and one of his officers assassiuated him at Ancona, as he was preparing war against Sylla.

CI'NNABAR, *n. s.* Lat. *cinnabaris.* Cinnabar is native or factitious: the factitious cinnabar is called vermilion. See Chemistry.

> *Cinnabar* is the ore out of which quicksilver is drawn, and consists partly of a mercurial, and partly of a sulphureo-ochreous matter.
>
> *Woodward's Met. Fossils.*

> The particles of mercury uniting with the particles of sulphur, compose *cinnabar.* *Newton's Optics.*

Cinnabar, Factitious, is a mixture of mercury and sulphur sublimed, and thus reduced into a fine red. The best is of a high color, and full of fibres like needles.

Cinnabar, Native, is an ore of quicksilver, moderately compact, very heavy, and of an elegant striated red color. The chief use of cinnabar is for painting. Although this body is composed of sulphur, which is of a light yellow color, and mercury which is white as silver, it is nevertheless of an exceedingly strong red color. Lumps of it are of a deep brown red without brilliancy; but when the too great intensity of its color is diminished, by bruising and dividing it into small parts, the red of the cinnabar becomes more and more exalted, flame colored, and exceedingly vivid and brilliant: in this state it is called vermilion. Cinnabar is often employed as an internal medicine. Hoffman greatly recommends it as a sedative and antispasmodic: and Stahl makes it an ingredient in his temperant powder. Other intelligent physicians deny that cinnabar taken internally has any medicinal quality. Their opinion is grounded on the insolubility of this substance in any menstruum. This question concerning its internal utility cannot be decided without further experiments; but cinnabar is certainly used with success to procure a mercurial fumigation, when that method of cure is proper in venereal diseases. For this purpose it is burnt in an open fire on red hot coals, by which the mercury is disengaged and forms vapors, which, being applied to the body of the diseased person, penetrates through the pores of the skin, and produce effects similar to those of mercury administered by friction.

Ci'nnabar of Antimony is made of mercury, sulphur, and crude antimony.

CI'NNAMON, *n. s.* Lat. *cinnamomum.* The fragrant bark of a low tree in the island of Ceylon. Its leaves resemble those of the olive, both as to substance aud color. The fruit resembles an acorn or olive, and has neither the smell nor taste of the bark. When boiled in water, it yields an oil, which, as it cools and hardens, becomes as firm and white as tallow; the smell of which is agreeable in candles. The cinnamon of the ancients was different from ours.

> Let Araby extol her happy coast,
> Her *cinnamon* and sweet amomum boast.
>
> *Dryden's Fables.*

Cinnamon is the bark of two species of laurus. The true cinnamon is from the laurus cinnamomum; and the base cinnamon, which is often sold for the true, is from the laurus cassia. See Laurus.

Cinnamon, Clove, is the bark of a tree growing in Brasil, which is often substituted for real cloves.

Cinnamon, White, or winter's bark, is the bark of a tree frequent in the isle of St. Domingo, Guadaloupe, &c. of a sharp biting taste like pepper. Some use it instead of nutmeg: and in medicine it is esteemed a stomachic and antiscorbutic. See Canella.

Ci'nnamon Water is made by distilling the bark, first infused in barley water, in spirit of wine, or white wine.

CINNAMUS, a Greek historian, who wrote a History of the Eastern Empire, during the reigns of John and Manuel Comnenus, from A.D. 1118 to 1143. His style is reckoned the best of the modern Greek authors. He died about 1183.

CI'NQUE, *n. s.* Fr. A five. It is used in games alone; but is often compounded with other words.

Ci'nque-foil, *n. s.* Fr. *cinque feuille.* A kind of five-leaved clover.

Ci'nque-pace, *n. s.* Fr. *cinque pas.* A kind of grave dance.

> Wooing, wedding, and repenting, is a Scotch jig, a measure, and a *cinque-pace.* The first suit is hot and hasty, like a Scotch jig, and full as fantastical; the wedding, mannerly and modest, as a measure full of state and gravity; and then comes repentance, and, with his bad legs, falls into the *cinque-pace* faster and faster, till he sinks into his grave. *Shakspeare.*

Ci'nque Ports, *n. s.* Fr. *cinque ports.* Certain havens, or ports, on the south coast of England, for whose privileges see below.

> They, that bear
> The cloth of state above her, are four barons
> Of the *cinque ports.* *Shakspeare.*

Cinque Ports, five havens that lie towards France, and therefore have been thought by our kings to be such as ought most vigilantly to be preserved against invasion Cinque ports were thus called by way of eminence on account of their superior importance, as having been thought to merit a particular regard by the kings of England, for their preservation against invasion. Hence they have a particular policy, and are governed by a keeper with the title of Lord Warden of the cinque ports. Camden tells us that William the Conqueror first appointed a warden of the cinque ports: but king John first granted them their privileges, upon condition they should provide eighty ships at their own charges for forty days, as often as the king should have occasion in the wars; he being then straitened for a navy to recover Normandy The five ports are, Hastings, Romney, Hythe, Dover, and Sandwich. Thorn tells, that Hastings provided twenty-one vessels, and in each vessel twenty-one men. To this port belong Seaford, Pevensey, Hedney, Winchelsey, Rye, Hamine, Wakesbourn, Creneth, and Forthclipe. Romney provided five ships, and in each twenty-four men. To this belong Bromhal, Lyde, Oswarstone, Dangemares, and Romenhal. Hythe furnished five ships, and in each twenty-one seamen. To this belongs Westmeath. Dover the same number as Hastings. To this belong Folkstone, Faversham, and Marge. Sandwich furnished the same number as Hythe. To this belong Fordiwic, Reculver, Serre, and Deal. The privileges granted to them in consequence of these services were very great. Amongst others, they were each of them to send two barons to represent them in parliament; their deputies were to bear the canopy over the king's head at the time of his coronation, and to dine at the uppermost table in the great hall on his right hand; to be exempted from subsidies and other aids; their heirs to be free from personal wardship, notwithstanding any tenure; to be impleaded in their own towns only, and not to be liable to tolls, &c.

CI'NQUE-SPOTTED, *adj*. Having five spots.

> On her left breast
> A mole, *cinque spotted*, like the crimson drops
> I' the bottom of a cowslip. *Shakspeare.*

CINTRA, a small town of Portugal, in Estremadura, situated between the mountains of Cintra, anciently called the Mountains of the Moon, at the foot of a promontory on the north side of the entrance of the Tajo, commonly called the Rock of Lisbon. Here was a palace built by the Moors, which was destroyed by an earthquake in 1655, and rebuilt by king Joseph in the same style. Cintra contains four parish churches, and 1900 inhabitants. At this place was concluded, 22nd August 1808, the celebrated convention between the British forces under Sir H. Dalrymple, and the French army under general Junot, whereby the latter evacuated Portugal with all their ill-gotten spoil, and the British general, and British nation were, as but too often, jilted, in conditions of peace, out of every thing that had been earned by a well fought contest. Mr. Southey (History of the late war in Spain and Portugal) says that the public feeling (decidedly hostile to this convention) never was so unanimously and instantaneously manifested. Lord Byron (see our sketch of his life) wrote a strong philippic upon it, in some suppressed stanzas of his Childe Harold. It is fifteen miles north-west of Lisbon.

CINUS, or CYNUS, a celebrated civilian of Pistoia, in the fourteenth century. His Commentary on the Code was finished in 1315; he also wrote on some parts of the digest. He was no less famous for his Italian poems, and is ranked among those who first gave graces to the Tuscan lyric poetry.

CINYRA, in the Jewish antiquities, a musical instrument. See CHINNOR.

CINYRAS, in fabulous history, a king of Cyprus, son of Paphus. He married Cenchreis, by whom he had a daughter called Myrrha. Myrrha fell in love with her father, and in the absence of her mother she introduced herself into his bed by means of her nurse. Cinyras had by her a son called Adonis; and when he knew the incest he had committed, he attempted to stab his daughter, who escaped his pursuit and fled into Arabia, where, after she had brought forth, she was changed into a tree which still bears her name. Cinyras, according to some, stabbed himself.

CI'ON, *n. s.* Fr. *sion*, or *scion*. A sprout; a shoot from a plant. The shoot engrafted or inserted on a stock.

> We have reason to cool our raging motions, our carnal stings, our unbitted lusts; whereof I take this, that you call love, to be a sect or *cion*. *Shakspeare.*
>
> The *cion* over-ruleth the stock; and the stock is but passive, and giveth aliment, but no motion, to the graft. *Bacon.*
>
> The stately Caledonian oak, newly settled in his triumphant throne, begirt with *cions* of his own royal stem. *Howel.*

CIONS, or CYONS, in gardening, are used in grafting; which is performed by the application of the cion of one plant upon the stalk of another. To produce a stock of cions for grafting, planting, &c. the gardeners sometimes cut off the bodies of trees a little above the ground, and only leave a stump or root standing; the redundant sap will not fail next spring to put forth a great number of shoots. In dressing dwarf trees, a great many cions are to be cut off.

CIOTAT, a sea-port town of France, in the department of the Mouths of the Rhone, and ci-devant province of Provence; famous for Muscadine wine. It is seated on the bay of Laques, between Marseilles and Toulon, twelve miles from the former, and sixteen from the latter place, and the harbour is defended by a strong fort. Population 5274.

CI'PHER, *n. s.*, *v. n.* & *v. a.* Ital. *cifra*; Fr. *chifre*, from Ar. *sifr*; Heb. *sepher*, numeration. The figure 0 in arithmetic; a secret character for writing. An arithmetical mark, which, standing for nothing itself, increases the value of the other figures. An intertexture of letters engraved usually on boxes or plate. A character in general. A secret or occult manner of writing, or the key to it. The verb of course applies to each of the senses given of the noun. To cipher is to draw characters, occult or general, and *to practise* arithmetic.

> His crest was covered with a couchant hownd,
> And all his armour seemed of antique mould,
> But wondrous massy and assured sownd,
> And round about yfretted all with gold,
> In which there written was with *cyphers* old
> Achilles' arms, which Artegall did win,
> And on his shield, enveloped sevenfold,
> He bore a crowned little ermilin,
> That deckte the azure field with her faire pouldered skin.
> *Spenser.*
>
> In succeeding times this wisdom began to be written in *ciphers* and characters, and letters bearing the form of creatures. *Raleigh's History of the World.*
>
> Mine were the very *cipher* of a function,
> To find the faults, whose fine stands in record,
> And let go by the actor. *Shakspeare.*
>
> If the people be somewhat in the election, you cannot make them nulls or *ciphers* in the privation or translation. *Bacon.*
>
> This book, as long lived as the elements,
> In *cipher* writ, or new-made idioms. *Donne.*
>
> He frequented sermons, and penned notes: his notes he *ciphered* with Greek characters. *Hayward.*
>
> As, in accounts, *ciphers* and figures pass for real sums, so names pass for things. *South.*

dies were changed at
name. Lloyd,
himself.

CION, n. s. Fr.
shoot from a plant.
inserted on a stock.

We have some
external things, on
that you call love,

The true ornament
pasture, and great
groth.

The stately Caledonian
triumphant forms,
trees.

Cions, or Cyons, a piece
grafting; which a
of the points of one
To produce a seed
&c. the gardeners
trees a little above
stump or root standing
not fail sweet spring
of shoots. In dressing
cions are to be cut off.

CIOTAT, a sea-port town
department of the Mouths
ovince province of Provence
allow wine. It is seated
tween Marseilles and Toulon
m the former, and
d the harbour is defended
pulation 5174.

CIPHER, n. s., v. n. & v. a.
fr. from Ar.
m 0 in arithmetic a
ing. An arithmetical
nothing itself,
es. An intertexture of
lly on boxes or plate
A secret or occult
ey to it. The
between
characters, occult or general
alphabet.

crest was covered with a
This armour
silver
and
A cherry
arms, which
his
a crowned
in the same field

reading
and characters,
Raleigh's

were the very
his faults, whose
up by the same
cipher for
letter, in cipher

book, as long lived
r writ, or
hand
med with Greek
cipher and
in place for things.

CIPHER & CIRCUMFERENTOR

CIRCUMFERENTOR

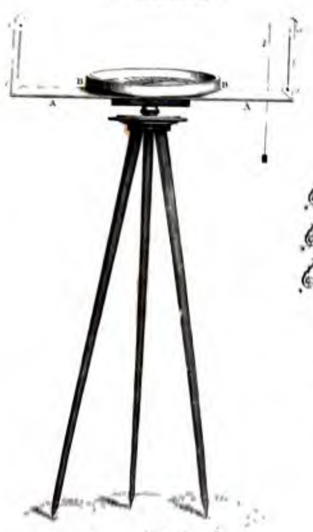


Fig. 3

Alz un rve mmm svar
ywer qv cd rve dbbum
blqar h urkdark hkt
rve ahj dqumm ahlr
h albha yqvrduqurk

Fig. 4

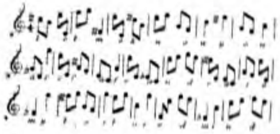


Fig. 1

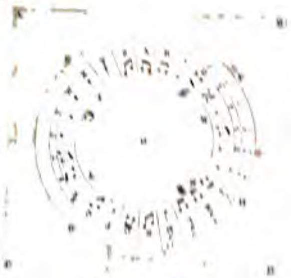
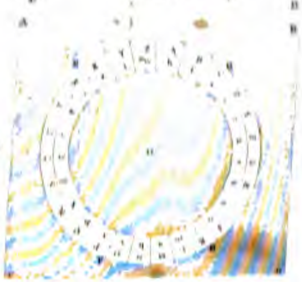


Fig. 2



London, Published by [illegible]

He was pleased to command me to stay at London, to send and receive all his letters; and I was furnished with nine several *ciphers*, in order to it.
Denham.

Troy flamed in burnished gold; and o'er the throne,
Arms and the Man in golden *ciphers* shone. *Pope.*

You have been bred to business; you can *cipher*: wonder you never used your pen and ink.
Arbuthnot.

Some mingling stir the melted tar, and some
Deep on the new-shorn vagrant's heaving side
To stamo the master's *cipher* ready stand.
Thomson.

Cipher, or Cypher. See **Arithmetic.**

Cipher is a kind of enigmatic character, composed of several letters interwoven, which are generally the initial letters of the person's names for whom the ciphers are intended. These are frequently used on seals, coaches, and other moveables. Anciently merchants and tradesmen were not allowed to bear arms; in lieu thereof, they bore their ciphers, or the initial letters of their names, artfully interwoven about a cross; of which we have various instances on tombs, &c.

Ciphers are also certain secret characters used in writing confidential, public, and private letters. De la Guilletiere, in his Lacedæmon, ancient and modern, endeavours to make the ancient Spartans the inventors of the art of writing in cipher. Their scytala, according to him, was the first sketch of this mysterious art; these scytala were two rollers of wood, of equal length and thickness; one of them kept by the ephori, the other by the general of the army sent on any expedition against the enemy. When these magistrates would send any secret orders to the general, they took a slip of parchment, and rolled it very exactly about the scytala which they had reserved; and in this state wrote their intentions, which appeared perfect and consistent while the parchment continued on the roll: when taken off, the writing was maimed, and without connexion: but was easily retrieved by the general, upon his applying it to his scytala. Polybius says, that Æneas Tacticus, 2000 years ago, collected together twenty different manners of writing, so as not to be understood by any but those in the secret; part of which were invented by himself, and part used before his time. Trithemius, Bap. Porta, Vigenere, and P. Niceron, have written expressly on the subject of ciphers. Various obvious modes of arranging a secret correspondence of this kind, will occur to every ingenious person. The Stuarts, in their correspondence with their adherents in this country, since the Revolution, seem to have made the last public use of this mode of transmitting intelligence. Charles I. it is said, had a cipher consisting only of a straight line differently inclined: and there are ways of ciphering by the mere punctuation of a letter, whilst the words shall be non-significants, or sense that leaves no room for suspicion. Those who wish to see a full explanation of ciphering, may consult Bacon in his Advancement of Learning, where they will find a cipher of his own invention; bishop Wilkins' Secret and Swift Messenger; Falconer's Cryptomenysis Patefacta, and Kircher's Steganography. We select as a specimen of this once important art, the following modes:—

Cipher by Dials. On a piece of square pasteboard A B C D, plate **Circumferentor**, and **Cipher**, fig. 1, 2, draw the circle E F G H, and divide it into twenty-six equal parts, in each of which must be wrote one of the letters of the alphabet. On the inside of this there must be another circle of pasteboard, I L M N, moveable round the centre O, and the extremity of this must be divided into the same number of equal parts as the other. On this also must be written the letters of the alphabet, which, however, need not be disposed in the same order. The person with whom you correspond must have a similar dial, and at the beginning of your letter you must put any two letters that answer to each other when you have fixed the dial. Example. Suppose you would write as follows:—'If you will come over to us, you shall have a pension, and you may still make a sham opposition.' You begin with the letters *Ma*, which show how the dial is fixed; then for *If you*, you write *un juc*, and so for the rest, as in fig. 3. The same intention may be answered by a ruler, the upper part of which is fixed and the lower part to slide, but in this case the upper part must contain two alphabets in succession, that some letter of that part may constantly correspond to one in the lower part. The divisions standing directly over each other in a straight line, will be much more obvious than in the circumference of a circle. Or two straight pieces of pasteboard regularly divided, the one containing a single and the other a double alphabet, would answer exactly the same purpose. In this case a blank space may be left at each end of the single alphabet, and one or two weights being placed on both the pieces will keep them steady.

Cipher, Musical. The construction of this cipher is similar to that given above. The circle E F G H, fig. 1, is to be divided into equal parts; in each part must be written one of the letters of the alphabet: and on the anterior circle I'L M N, moveable round the centre O, there is to be the same number of divisions; the circumference of the inner circle must be ruled in the manner of a music paper; and in each division there is to be placed a note, differing either in figure or position. Lastly, within the musical lines place the three keys, and on the outer circle, the figures that are commonly used to denote the time. Then provide a ruled paper, and place one of the keys, as suppose that of *ge re sol*, against the time two-fourths at the beginning of the paper, which will inform your correspondent how to fix his circle. Then copy the notes that answer to the several letters of the words you intend to write, in the manner expressed in fig. 4. A cipher of this sort may be made more difficult to discover by frequently changing the key, and that will not in the least embarrass the reader. You may likewise add either of the marks (fig. 5) to the note that begins a word, which will make it more easy to read, and at the same time give the music a more natural aspect. This cipher is preferable to that by dials, as it may be enclosed in a letter about common affairs, and pass unsuspected.

CIPPUS, in antiquity, a low column, with an inscription, erected on the high roads, or other places, to show the way to travellers; to serve as a boundary; to mark the grave of a deceased person, &c.

CIPRIANI (Giovanni Batista), a celebrated modern painter, was born in Tuscany, at Pistoia, in 1727. Receiving the rudiments of his art from an Englishman residing at Florence, under the name of Gabbiani, he went to Rome for three years, in 1750; and came afterwards to England with Sir William Chambers. When the duke of Richmond opened his gallery as a school of arts, he was appointed a visitor. At the foundation of the Royal Academy, in 1769, he made the design for the diploma, and received the present of a silver cup. His best paintings are at Houghton, but he has left many highly valued drawings. Bartolozzi engraved many of his designs. He died at Chelsea in 1785.

CIRCÆA, enchanter's night shade; a genus of the monogynia order, and diandria class of plants; natural order, forty-eighth, aggregatæ: COR. dipetalous: CAL. diphyllous, superior, with one bilocular seed. There are two species, one of which is a native of Britain, and the other of Germany. They are low herbaceous plants with white flowers, and possessed of no remarkable property.

CIRCARS, NORTHERN, a province reaching along the west of the Bay of Bengal, from the fifteenth to the twentieth degree of north latitude, bounded by the sea on the west, by the province of Hyderabad on the south-east, from which a range of small hills and the river Godavery separate it; to the north of that river it is divided from Berar by a continued ridge of almost impassable mountains to the Circars at Goomsur; these then turn to the eastward, and together with the Chilka Lake form a boundary of nearly fifty miles on the north. On the south the small river Gundezama separates this country from Ongole and the Carnatic on the east of the Ghauts. It contains about 17,000 square miles, one-fifth arable land, two-fifths pasture, and the remainder woods, water, towns, barren hills, or the sandy waste that runs along the whole coast, and is about three miles broad on the average. It is divided into five districts, Guntoor, Mortizabad, Condapilly or Mustaphabad, Ellore, Rajamundry, and Cicacole, anciently Calingas. It contains several places of consequence, as Ganjam, Calingapatam, Vizianagram, Bindipatam, Visagapatam, and Masulipatam. Its population amounts to two millions and a half, mostly Hindoos, but in the towns there are many Mahommedans, and a few native Christians.

This country is well watered by numerous rivers, which rise in the mountains on the north-west and run through it to the sea. Of these the Godavery is the only one of very great extent, reaching across the peninsula from the Ghauts, a little to the north of Bombay, and falling into the Bay of Bengal almost at the southern extremity of the Circars. The soil is consequently very fruitful, and yields one plentiful crop in the year, producing grain of all kinds, especially rice, tobacco, sugar, and cotton. It abounds also in timber for ship-building. Large ships have been built at Coringa and Narsipore, near the principal mouths of the Godavery, and the coasting trade, it is said, employs not less than 30,000 tons of a smaller description. Although, however, it possesses so great an extent of coast, it has not a single harbour where a large vessel can anchor, much less ride secure from the storms. Masulipatam is the only port on the coast of Coromandel at which any vessels can ride without the inconvenience of a heavy surf. The chief lake is Chilka, about thirty-five miles long by eight broad, separating the northern Circars from the province of Cuttack. Few fruits and vegetables are grown here, especially in the southern parts, it being extremely difficult to raise them, owing probably to the influence of the sea breezes.

Here, as indeed over the greater part of southern India, the village system prevails; this is a political arrangement, by which a village includes not only the spot that is inhabited, but that part of the adjacent country from which its subsistence is obtained. The employments, except simply the cultivation of the soil, are performed by public servants, who are paid by a portion of land, and a few small gratuities in harvest time. These are the potail or chief, the talia and totie, a kind of police, the boundary-man, the superintendant of the water courses, the brahmin, the schoolmaster, the astrologer, the smith and carpenter, the poet, the musician, and the dancing girl. Under this form these people have for ages retained not only their customs but even their name unaltered. The hilly part of the country is in the possession of zemindars, who let their lands on condition of military service, according to the ancient feudal custom. These hold the chief sway over the rest of the people, being able to bring into the field more than 40,000 troops. Their power was most formidable, and altogether uncontrolled, until the year 1794, when the great zemindar of Vizianagram was punished for his oppression and expulsion of the inferior chieftains; and to this time the administration is not properly fixed on a regular plan, so as to be truly advantageous to the country.

Owing to the great influence of the sea air, these provinces are cooler than most other parts of the world in the same latitude. At the approach of summer the heat becomes excessive, especially in the tracts of sand near the coast. Among the hills and marshy jungles the pestilential vapors that arise produce a disease called the hill fever, which is sometimes very prevalent. North of the Godavery the rains set in about the middle of June, continuing gentle till the middle of August, this is called the small rain harvest; from this time it is more abundant till November, when it is succeeded by storms and the north-easterly wind; after this a pleasant season ensues, in the middle of which, or early in January, the rice and bajary harvest closes. The harvest for maize and the different sorts of grain, finishes at the vernal equinox; then the hot season commences, which is however moderate in the north, owing to the vicinity of the sea and the mountains.

Sheep, and the larger species of horned cattle, are found in these countries, and the adjacent sea and its numerous inlets furnish an abundance of fish of every kind known in India. Grain, however, is the chief production of the Circars; in former times it was the granary of the Carnatic during the north-east monsoon, as Tanjore was during the south-west. Rice, paddy, wheat and other grains in use among the natives, are annually exported to Madras, and in the first four months of 1812, when these articles were at a high price there, the quantity sent from this country amounted to the sum of more than a million of sicca rupees. The indigo exported to the same place amounts to 45,000 rupees, and the rum from the province of Ganjam, for the use of the navy, to 87,700 rupees. These provinces also send to Madras chillies, fire-wood, coriander seeds, cashew nuts, and other articles used by the natives as drugs and for their religious ceremonies. The imports from Madras consist of coiled cables and cordage for the native vessels, and treasure sent for the purchase of salt, and goods for the British market. Besides these they receive quantities of Madeira, claret, and port wines, ale, brandy, oilman's stores, glass, stationary, tea, copper of different sorts, steel and every kind of hardware, with various articles from the eastward, as cloves, benjamin, pepper, tin, dammer and borax.

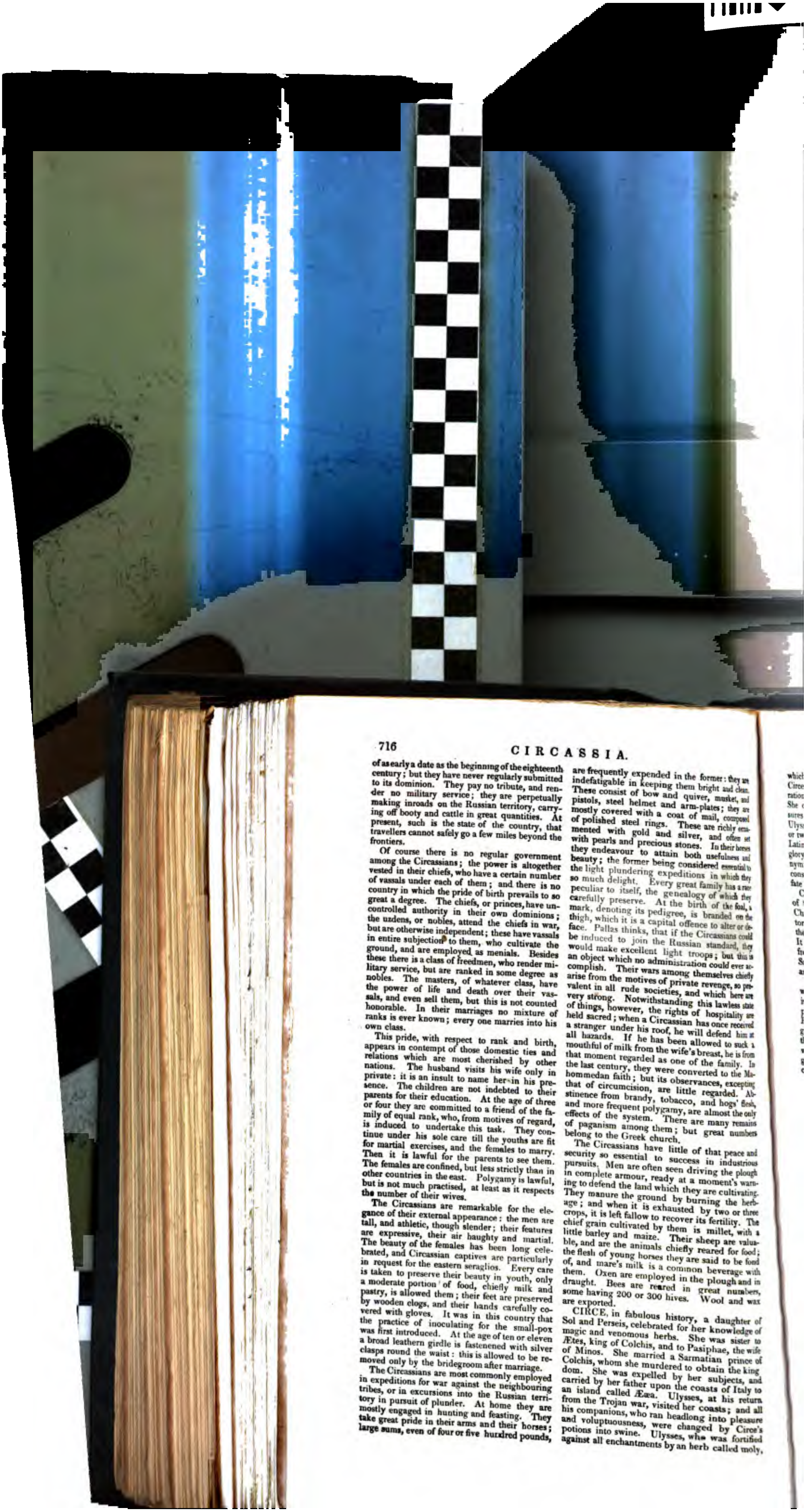
Manufactures to a considerable extent are carried on in the Circars. Round Nagpore plain long cloth is fabricated, of which the best prints in Europe are made; some of a coarser sort are made to the north and south of the river Godavery. Cicacole is remarkable for curious muslins, Ellore for carpets, and Berhampore for silks manufactured from the raw material, procured from Bengal and China. Madras is principally supplied with piece goods from the Northern Circars; the thread is spun by the cultivating caste, and the weavers, owing to various regulations made in their favor, are able to live better than the laboring class; but they are generally more dissipated, and squander their wages in gaming and cock-fighting. The females in general prepare the thread and sell it to the weavers, and many who belong to decayed families derive their subsistence from this employment The cotton is chiefly raised in the country; the rest is brought from the states of the Nizam and the Mahrattas. That grown in the country is preferred, being cleaner, but either too much or too little rain will destroy the crop. Colored piece goods are exported from Masulipatam, not only to Madras, but to Bombay and the Persian Gulf.

The natives are divided into two nations, the Telinga and Oria or Orissa, formerly separated by the Godavery; but now much intermixed. Their dialects are different, and they have rites and customs perfectly distinguishable: both have the four castes or subdivisions common to India, but the Orias are said to deviate least from the original institutions. The brahmins are the chief; the rachwars, rowwars and velmas, of which the zemindars form a part, follow the manners of the rajpoots and profess to belong to the khetras or warriors; the husbandmen, cow-herds, weavers, and artificers, are all sudras; the shopkeepers belong to the vaisya or third caste.

The history of this country, while under the Hindoo governments, is like that of other parts of India, enveloped in mystery. The Mahommedans invaded it in the fifteenth century, but it was not perfectly reduced till 1571, in the reign of Ibrahim Kootub, shah of Golconda. It fell into the hands of Aurengzebe in 1687, and under the Mogul dynasty it formed a part of the government of the Nizam of the Deccan. In the year 1752–3 it was made over to M. Bussy for the payment of the French auxiliary forces, and from that time continued in their possession till it was conquered by the British in 1759. A formal grant was made of it six years after, from shah Alum the great mogul, to lord Clive; but the brother of the nizam was allowed to retain Guntoor, which had been settled on him, until his death, which took place in 1788, since which time the East India Company have had the entire possession.

CIRCASSIA, a considerable country in Asia, including a large portion of territory between the Black Sea and the Caspian. It is bounded, as far as its limits can be defined, by the Black Sea on the west, and the Caspian on the east; on the south by the northern declivity of the great range of Caucasus, and on the north by the rivers Terek and Cuban. The approach to it on the north is very striking, over a vast steppe, or level plain, beyond which, in the distance, is seen, rising abruptly, the great chain of the Caucasian Mountains; four distinct groupes have their summits always covered with snow, and the Elboras, rivaling Mont Blanc in magnitude, raises its lofty head above them all. The intervening ridge, called the Black Mountains, hardly more than half the height of the Elboras, is so precipitous that it has the appearance of a wall. Beneath these ranges the country extends, including many beautiful valleys, feeding vast flocks and herds, and yielding a most abundant crop of maize and millet, the sorts of grain chiefly cultivated here. It lies between thirty-seven and forty-six degrees of east longitude, and forty-one and forty-five of north latitude, but its exact boundaries can hardly be ascertained, the ancient extent having been much contracted by the Russians, who have erected the fortresses of Mozuk and Georgrewsk on the line of the Terek and Cuban, to check the inroads of the semibarbarous native tribes.

The name given to the inhabitants of this country is a corruption of the Russian, Tcherkess, or Tcherkessians; but these names are not known in the region itself, which is occupied by a number of petty, independent tribes, hostile to each other, and many of them ignorant of each other's language. The principal of these are the Great and Little Kabardines, the Abasses, the Kisti, and the Assetes, but as these, with almost an indefinite number more, all agree in their general character, and are reckoned by the Russians under one name, it is unnecessary to enter into their minute distinctions. They are in a very imperfect state of subjection to Russia; their dependence is indeed acknowleged in documents preserved in the archives of the empire



of as early a date as the beginning of the eighteenth century; but they have never regularly submitted to its dominion. They pay no tribute, and render no military service; they are perpetually making inroads on the Russian territory, carrying off booty and cattle in great quantities. At present, such is the state of the country, that travellers cannot safely go a few miles beyond the frontiers.

Of course there is no regular government among the Circassians; the power is altogether vested in their chiefs, who have a certain number of vassals under each of them; and there is no country in which the pride of birth prevails to so great a degree. The chiefs, or princes, have uncontrolled authority in their own dominions; the uzdens, or nobles, attend the chiefs in war, but are otherwise independent; these have vassals in entire subjection to them, who cultivate the ground, and are employed as menials. Besides these there is a class of freedmen, who render military service, but are ranked in some degree as nobles. The masters, of whatever class, have the power of life and death over their vassals, and even sell them, but this is not counted honorable. In their marriages no mixture of ranks is ever known; every one marries into his own class.

This pride, with respect to rank and birth, appears in contempt of those domestic ties and relations which are most cherished by other nations. The husband visits his wife only in private: it is an insult to name her in his presence. The children are not indebted to their parents for their education. At the age of three or four they are committed to a friend of the family of equal rank, who, from motives of regard, is induced to undertake this task. They continue under his sole care till the youths are fit for martial exercises, and the females to marry. Then it is lawful for the parents to see them. The females are confined, but less strictly than in other countries in the east. Polygamy is lawful, but is not much practised, at least as it respects the number of their wives.

The Circassians are remarkable for the elegance of their external appearance: the men are tall, and athletic, though slender; their features are expressive, their air haughty and martial. The beauty of the females has been long celebrated, and Circassian captives are particularly in request for the eastern seraglios. Every care is taken to preserve their beauty in youth, only a moderate portion of food, chiefly milk and pastry, is allowed them; their feet are preserved by wooden clogs, and their hands carefully covered with gloves. It was in this country that the practice of inoculating for the small-pox was first introduced. At the age of ten or eleven a broad leathern girdle is fastenened with silver clasps round the waist: this is allowed to be removed only by the bridegroom after marriage.

The Circassians are most commonly employed in expeditions for war against the neighbouring tribes, or in excursions into the Russian territory in pursuit of plunder. At home they are mostly engaged in hunting and feasting. They take great pride in their arms and their horses; large sums, even of four or five hundred pounds, are frequently expended in the former: they are indefatigable in keeping them bright and clean. These consist of bow and quiver, musket, and pistols, steel helmet and arm-plates; they are mostly covered with a coat of mail, composed of polished steel rings. These are richly ornamented with gold and silver, and often set with pearls and precious stones. In their horses they endeavour to attain both usefulness and beauty; the former being considered essential to the light plundering expeditions in which they so much delight. Every great family has a race peculiar to itself, the genealogy of which they carefully preserve. At the birth of the foal, a mark, denoting its pedigree, is branded on the thigh, which it is a capital offence to alter or deface. Pallas thinks, that if the Circassians could be induced to join the Russian standard, they would make excellent light troops; but this is an object which no administration could ever accomplish. Their wars among themselves chiefly arise from the motives of private revenge, so prevalent in all rude societies, and which here are very strong. Notwithstanding this lawless state of things, however, the rights of hospitality are held sacred; when a Circassian has once received a stranger under his roof, he will defend him at all hazards. If he has been allowed to suck a mouthful of milk from the wife's breast, he is from that moment regarded as one of the family. In the last century, they were converted to the Mahommedan faith; but its observances, excepting that of circumcision, are little regarded. Abstinence from brandy, tobacco, and hogs' flesh, and more frequent polygamy, are almost the only effects of the system. There are many remains of paganism among them; but great numbers belong to the Greek church.

The Circassians have little of that peace and security so essential to success in industrious pursuits. Men are often seen driving the plough in complete armour, ready at a moment's warning to defend the land which they are cultivating. They manure the ground by burning the herbage; and when it is exhausted by two or three crops, it is left fallow to recover its fertility. The chief grain cultivated by them is millet, with a little barley and maize. Their sheep are valuable, and are the animals chiefly reared for food; the flesh of young horses they are said to be fond of, and mare's milk is a common beverage with them. Oxen are employed in the plough and in draught. Bees are reared in great numbers, some having 200 or 300 hives. Wool and wax are exported.

CIRCE, in fabulous history, a daughter of Sol and Perseis, celebrated for her knowledge of magic and venomous herbs. She was sister to Ætes, king of Colchis, and to Pasiphae, the wife of Minos. She married a Sarmatian prince of Colchis, whom she murdered to obtain the kingdom. She was expelled by her subjects, and carried by her father upon the coasts of Italy to an island called Ææa. Ulysses, at his return from the Trojan war, visited her coasts; and all his companions, who ran headlong into pleasure and voluptuousness, were changed by Circe's potions into swine. Ulysses, who was fortified against all enchantments by an herb called moly, which he had received from Mercury, went to Circe, and, sword in hand, demanded the restoration of his companions to their former state. She complied, and loaded the hero with pleasures and honors. In this voluptuous retreat Ulysses had by Circe one son called Telegonus, or two, according to Hesiod, called Agrius and Latinus. For one whole year Ulysses forgot his glory in Circe's arms. At his departure the nymph advised him to descend to hell, and to consult the manes of Tiresias concerning the fate that attended him.

CIRCELLO MONTE, a hill and promontory of the Campagna di Roma, in the States of the Church. It was the famous Circæum promontorium, or jugum, of the ancients, mentioned in the Odyssey and Æneid as having been an island. It has six towers, each about two miles distant from the other, and a small fortified town, called San Felice, twenty-eight miles west of Gaeta, and fifty south-east of Rome.

CIRCENSIAN GAMES, a general term under which was comprehended all combats exhibited in the Roman circus, in imitation of the Olympic games in Greece. Most of the feasts of the Romans were accompanied with Circensian games; and the magistrates and other officers of the republic frequently presented the people with them, in order to procure their favor. The grand games were held five days, commencing on the fifteenth of September. See CIRCUS.

CI'RCINATE, *v. a.* } Lat. *circino*. To make
CI'RCINATION, *n. s.* } a circle; to compass round, or turn round. An orbicular motion; a turning round; a measuring with the compasses.

CI'RCLE, *n. s., v. a.* & *v. n.* } Lat. *circulus*.
CI'RCLED, *adj.* } A line continued
CI'RCLET, *n. s.* } till it ends where
CI'RCLING, *participial adj.* } it begun, having all its parts equidistant from a common centre. The space included in a circular line. A line of enclosure; whatever has a centre and moves round it; applied variously to anything that ends where it begins; to an assembly drawn by some attraction to a particular place; to a particular species of inconclusive argument; circumlocution, going round about. To circle is to move round a centre; to enclose; to surround. Circlet is the diminutive of circle.

It is he that sitteth upon the *circle* of the earth.
Isaiah.

Certes, said she, I wote not how he hight,
But under him a gray steede he did wield,
Whose sides with dapled *circles* weren dight;
Upright he rode, and in his silver shield
He bore a bloodie crosse, that quartred all the field.
Spenser.

A great magician,
Obscured in the *circle* of the forest. *Shakspeare.*

What stern ungentle hands
Have lopped and hewed, and made thy body bare
Of her two branches, those sweet ornaments,
Whose *circling* shadows kings have sought to sleep in?
Id.

The inconstant moon,
That monthly changes in her *circled* orb. *Id.*

There be fruit trees in hot countries, which have blossoms and young fruit, and young fruit and ripe fruit, almost all the year, succeeding one another; but this *circle* of ripening cannot be but in succulent plants, and hot countries. *Bacon.*

The lords, that were appointed to *circle* the hill, had some days before planted themselves in places convenient. *Id.*

Has he given the lye
In *circle* or oblique, or semicircle,
Or direct parallel? You must challenge him.
Fletcher's Queen of Corinth.

As when a stone troubling the quiet waters,
Prints in the angry stream a wrinkle round,
Which soon another and another scatters,
Till all the lake with *circles* now is crowned:
Also the air, struck with some violence nigh,
Begets a world of *circles* in the sky,
All which inflected move with sounding quality.
P. Fletcher's Purple Island.

Round he surveys, and well might, where he stood
So high above the *circling* canopy
Of night's extended shade. *Milton's Paradise Lost.*

That heavy bodies descend by gravity; and again, that gravity is a quality whereby an heavy body descends, is an impertinent *circle*, and teacheth nothing.
Glanville's Scepsis.

Let others strive to immure
The *circle* in the quadrature. *Marvell.*

Regions remote, courts, counsils,
The *circling* wiles of tyrants' treacherys
He views, discerns, uncyphers, penetrates,
From Charles's dukes to Europe's armed states. *Id*

When daring blood, his rent to have regained
Upon the English diadem distrained,
He chose the cassock, *circingle*, and gown,
The fittest mask for one that robs the crown. *Id.*

Nothing, not bogs, nor sands, nor seas, nor Alps,
Separate the world so as the bishop's scalps,
Stretch for the line their *circingle* alone,
'Twill make a more inhabitable zone. *Id.*

Thus in a *circle* runs the peasant's pain,
And the year rolls within itself again.
Dryden's Virgil.

While these fond arms, thus *circling* you, may prove
More heavy chains than those of hopeless love. *Prior.*

Unseen, he glided through the joyous crowd,
With darkness *circled* and an ambient cloud. *Pope.*

To have a box where eunuchs sing
And, foremost in the *circle*, eye a king. *Id. Horace.*

Any thing that moves round about in a *circle*, in less time than our ideas are wont to succeed one another in our minds, is not perceived to move; but seems to be a perfect intire *circle* of that matter, or colour, and not a part of a *circle* in motion. *Locke.*

By a *circle* I understand not here a perfect geometrical *circle*, but an orbicular figure, whose length is equal to its breadth; and which, as to sense, may seem circular. *Newton's Opticks.*

That fallacy, called a *circle*, is when one of the premises in a syllogism is questioned and opposed, and we intend to prove it by the conclusion.
Watts's Logick.

Then a deeper still
In *circle* following *circle*, gathers round
To close the face of things. *Thomson's Summ*

The pale descending year, yet pleasing still
A gentler mood inspires; for now the leaf
Incessant rustles from the mournful grove;
Oft starting such as studious walk below,
And slowly *circles* through the waving air.
Id. Seasons.

Shall he whose birth, maturity, and age,
Scarce fill the *circle* of one summer day,
Shall the poor gnat, with discontent and rage,
Exclaim, that Nature hastens to decay? *Beattie.*

When the light shines serene, but doth not g are,
Then in this magic *circle* raise the dead :
Heroes have trod this spot—'tis on their dust ye tread.
Byron.

Circle, in geometry, a plane figure, comprehended by a single curve line, called its circumference, to which right lines drawn from a point in the middle, called the centre, are equal to each other. See Geometry.

Circle of Perpetual Apparition, one of the lesser circles, parallel to the equator; described by any point of the sphere touching the northern point of the horizon; and carried about with the diurnal motion. All the stars included within this circle never set, but are ever visible above the horizon. See Astronomy.

Circle of Perpetual Occultation, is another circle at a like distance from the equator; and contains all those stars which never appear in our hemisphere. The stars situated between these circles alternately rise and set at certain times.

Circles, Diurnal, are immoveable circles, supposed to be described by the seven stars, and other points of the heavens, in their diurnal rotation round the earth; or rather, in the rotation of the earth round its axis. The diurnal circles are all unequal: the equator is the biggest.

Circle, Druidical, in British topography, a name given to certain ancient enclosures formed by rude stones circularly arranged. These, it is now generally agreed, were temples, and many writers think also places of solemn assemblies for councils or elections, and seats of judgment. 'Instead,' says Mr. Borlace, 'of detaining the reader with a dispute, whether they were places of worship or council, it may with great probability be asserted, that they were used for both purposes; and, having for the most part been first dedicated to religion, naturally became afterwards the curiæ and fora of the same community.' These temples, though generally circular, occasionally differ both in figure and magnitude: with relation to the first, the most simple were composed of one circle. Stonehenge consisted evidently of two circles and two ovals, respectively concentric; whilst that at Bottalch, near St. Just, in Cornwall, is formed by four intersecting circles. And the great temple at Abury in Wiltshire, it is said, described the figure of a seraph, or fiery flying serpent, represented by circles and right lines. Some, besides circles, have avenues of stone pillars. Most, if not all of them, have pillars or altars within their centre. In magnitude and number of stones there is the greatest variety; some circles being only twelve feet diameter, and formed only of twelve stones, whilst others, such as Stonehenge and Abury contained, the first 140, the second 652, and occupied many acres of ground. All these different numbers and measures and arrangements had their pretended reference, either to the astronomical divisions of the year, or some mysteries of the druidical religion. The writer, however, above quoted, supposes, that these very small circles, sometimes formed of a low bank of earth, sometimes of stones erect, and frequently of loose small stones thrown together in a circular form, enclosing an area of about three yards diameter, without any larger circle round them, were originally places of burial. See Druidism.

Circles, Horary, in dialing, are the lines which show the hours on dials; though these be not drawn circular, but nearly straight. See Dialing.

Circles of Altitude, or almucantars, are circles parallel to the horizon, having their common pole in the zenith, and still diminishing as they approach the zenith. See Almucantar.

Circles of Latitude, or secondaries of the ecliptic, are great circles perpendicular to the plane of the ecliptic, passing through the poles thereof, and through every star and planet. They are so called, because they serve to measure the latitude of the stars, which is nothing but an arch of one of these circles, intersected between the star and the ecliptic. See Latitude.

Circles of Longitude are several lesser circles, parallel to the ecliptic; still diminishing in proportion as they recede from it. On the arches of these circles the longitude of the stars is reckoned.

Circles of the Sphere are such as cut the mundane sphere, and have their periphery either on its moveable surface, or in another immoveable, conterminous, and equidistant surface. See Sphere. Hence arise two kinds of circles, moveable and immoveable. The first those whose peripheries are in the moveable surface, and which therefore revolve with its diurnal motion: as, the meridians, &c. The latter have their periphery in the immoveable surface, and do not revolve; as the ecliptic, equator, and its parallels, &c. See Geography.

Circles, Polar, are immoveable circles, parallel to the equator, and at a distance from the poles, equal to the greatest declination of the ecliptic. That next the north pole is called the arctic; and that next to the southern one the antarctic.

CIRCONCELLIONES, a species of fanatics, who took their rise among the Donatists in the reign of the emperor Constantine, and committed the most horrible ravages and cruelties. Counts Ursacius and Taurinus were employed to quell them; they destroyed a great number of them, of whom the Donatists made as many martyrs. Ursacius, who was a good Catholic, and a religious man, having lost his life in an engagement with the barbarians, the Donatists did not fail to triumph in his death, as an effect of the vengeance of heaven. Africa was the theatre of these bloody scenes during a great part of Constantine's life. See Donatists.

CI'RCUIT, *n. s.* & *v. n.* Circuite'er, *n. s.* Circui'tion, *n. s.* Circu'itous, *adj.*	Fr. *circuit*; Lat. *circuitus*, *circuitio*. The act of moving round any thing;

the space enclosed in a circuit; space, extent, measured by travelling round, applied to the districts visited by the judges, where they biennially hold the assizes. It is in this sense a term of law. A ring; a diadem; that by which anything is encircled; a round-about, or protracted movement, whether applied to mind or action.

Circuition is the act of going round anything; compass; maze of argument. To move in a circle; to go round.

He attributeth unto it smallness in respect of *circuit*. *Hooker.*

To apprehend by what degrees they lean to things a show, though not in deed, repugnant one to another, requireth more sharpness of wit, more intricate *circuitions* of discourse, and depth of judgment, than common ability doth yield. *Id.*

And this fell tempest shall not cease to rage,
Until the golden *circuit* on my head
Do calm the fury of this mad-brained flaw. *Shakspeare.*

Up into the watch tower get,
And see all things despoiled of fallacies;
Thou shalt not peep through lattices of eyes,
Nor hear through labyrinths of ears, nor learn
By *circuit* or collections to discern. *Donne.*

But if within the *circuit* of these walks,
In whatsoever shake he lurk, of whom
Thou tell'st, by morrow dawning I shall know. *Milton.*

He led me up
A woody mountain, whose high top was plain,
A *circuit* wide inclosed. *Id. Paradise Lost.*

The lake of Bolsena is reckoned one-and-twenty miles in *circuit*. *Addison on Italy.*

The *circuits*, in former times, went but round about the pale; as the *circuit* of the cynosura about the pole. *Davies.*

Like your fellow *circuiteer*, the sun, you travel the round of the earth, and behold all the iniquities under the heavens. *Pope.*

Pining with equinoctial heat, unless
The cordial cup perpetual motion keep,
Quick *circuiting*. *Philips.*

There are four moons also perpetually rolling round the planet Jupiter, and carried along with him in his periodical *circuit* round the sun. *Watts on the Mind.*

And now the downy cheek and deepened voice
Gave dignity to Edwin's blooming prime;
And walks of wider *circuit* were his choice,
And vales more wild, and mountains more sublime. *Beattie.*

Circuit signifies the journey which the judges take twice every year through the several counties of England and Wales, to hold courts, and administer justice, where recourse cannot be had to the king's courts at Westminster: hence England is divided into six circuits, viz. the Home circuit; the Norfolk, Midland, Oxford, Western, and Northern circuits. In Wales there are but two circuits, North and South Wales: two judges are assigned by the king's commission to every circuit. In Scotland, the judges of the supreme criminal court, or court of justiciary, are divided into three separate courts, consisting of two judges each; and the kingdom into as many districts. In certain boroughs of every district, each of these courts by rotation, is obliged to hold two courts in the year, in spring and autumn; which are called circuit courts.

CI'RCULAR, *adj.*
Circula'rity, *n. s.*
Ci'rcularly, *adv.*
Ci'rculate, *v. n.* & *v. a.*
Circula'tion, *n. s.*
Ci'rculatory, *n. s.* & *adj.*

Lat. *circularis*, *circulus*. Round like a circle; circumscribed by a circle. Successive in order; always going round and returning. Ending in itself; used of a paralogism, where the second proposition at once proves the first, and is proved by it: for instance—

One of Cartes's first principles of reasoning, after he had doubted of every thing, seems to be too *circular* to safely build upon; for he is for proving the being of God from the truth of our faculties, and the truth of our faculties from the being of a God. *Baker's Reflections on Learning.*

It is applied to a letter directed to several persons, who have the same interest in some common affair; as in the convocation of assemblies. Circular lines. Such straight lines as are divided from the divisions made in the arch of a circle; as the lines of sines, tangents, and secants, on the plain scale and sector. Circular sailing is that performed on the arch of a great circle. Circularity signifies the circular form. The adverb is applied both to form and motion. The verb signifies to move in a circle; to convey intelligence, or any thing else, through or round a country. The derivative nouns are applied to motion in a circle, a course in which the motion tends to the point from which it began; to a series in which the same order is always observed, and things always return to the same state. Circulatory has a specific application. It is the name of a chemical vessel, in which that which rises from the vessel on the fire is collected and cooled in another fixed upon it, and falls down again.

The frame thereof seemed partly *circular*,
And part triangular. *Faerie Queene.*

The heavens have no diversity or difference, but a simplicity of parts, and equiformity in motion, continually succeeding each other; so that, from what point soever we compute, the account will be common unto the whole *circularity*. *Browne.*

As for the sins of peace, thou hast brought upon us the miseries of war; so for the sins of war, thou seest fit to deny us the blessing of peace, and to keep us in a *circulation* of miseries. *King Charles*, i. e. *Dr. Gauden.*

If our lives motions theirs must imitate,
Our knowledge like our blood must *circulate*. *Denham.*

Nature is a perpetual motion; and the work of the universe *circulates* without any interval or repose. *L'Estrange.*

Trade, which, like blood, should *circularly* flow,
Stopped in their channels, found its freedom lost. *Dryden.*

He first inclosed for lists a level ground;
The form was *circular*. *Id. Fables.*

From whence the innumerable race of things
By *circular* successive order springs. *Roscommon.*

The internal form of it consists of several regions, involving one another like orbs about the same centre; or of the several elements cast *circularly* about each other. *Burnet.*

As the mints of calumny are perpetually at work, a great number of curious inventions, issued out from time to time, grow current among the party, and *circulate* through the whole kingdom. *Addison.*

Nero's port, composed of huge moles running round it in a kind of *circular* figure. *Id. on Italy.*

In the civil wars, the money spent on both sides was *circulated* at home; no publick debts contracted. *Swift.*

God, by the ordinary rule of nature, permits this continual *circulation* of human things. *Id. on Modern Education.*

As much blood passeth through the lungs as through all the rest of the body: the *circulation* is quicker, and heat greater, and their texture extremely delicate
Arbuthnot on Aliments.

The pulmonary *circulation* is a system within a system; and an action of the heart is the origin of both.
Paley's Natural Theology.

Circular Numbers, or Spherical Numbers, are those whose powers terminate in the roots themselves. Thus, for instance, 5 and 6, all whose powers do end in 5 and 6, as the square of 5 is 25; the square of 6 is 36, &c.

Circulation of the Blood. See Physiology.

CIRCULUS, in chemistry, an iron instrument in form of a ring, which being heated red-hot, and applied to the necks of retorts and other glass vessels till they grow hot, a few drops of cold water thrown upon them, or a cold blast, will make the necks fly regularly and evenly off. Another method of doing this, is, to tie a thread, previously dipped in oil of turpentine, round the place where you would have it break; and then setting fire to the thread, and afterwards sprinkling the place with cold water, the glass will crack exactly where the thread was tied.

CIRCUMA'MBULATE, *v. n.* } From Lat. *circum* and *ambulo*, and
Circuma'mbiency, *n. s.*
Circuma'mbient, *adj.*
circum and *ambio*. To walk round about. The act of encompassing; surrounding; encompassing; enclosing.

Ice receiveth its figure according unto the surface it concreteth, or the *circumambiency* which conformeth it.
Browne.

The *circumambient* coldness towards the sides of the vessel, like the second region, cooling and condensing of it.
Wilkins.

Fain would we trace with reason's erring clue,
The darksome paths of destiny aright;
In vain; the task were easier to pursue
The trackless wheeling of the swallow's flight.
From mortal ken himself the Almighty shrouds,
Pavilioned in thick night and *circumambient* clouds.
Emily on Death.

CIRCUMAGENTES Musculi, in anatomy, certain oblique muscles of the eyes, so named from their helping to turn the eyes about.

CI'RCUMCISE, *v. a.* } Lat. *circumcido*. To
Circumci'sion, *n. s.* } cut the prepuce, or foreskin, according to the law given to the Jews.

They came to *circumcise* the child. *Luke.*

They left a race behind
Like to themselves, distinguishable scarce
From Gentiles, but by *circumcision* vain. *Milton.*

While with feigned treaties they invade by stealth
Our sore new *circumcised* common-wealth. *Marvell.*

For Hebrew roots, although they're found
To flourish most in barren ground,
He had such plenty, as sufficed
To make some think him *circumcised*. *Butler.*

He is alarmed at the industry of the whigs, in aiming to strengthen their routed party by a reinforcement from the *circumcised*. *Swift's Examples.*

Circumcision was first enjoined upon Abraham when God established his covenant with him, as a sign or seal of what that covenant respected, and how it was to be fulfilled to Abraham and the multitude of whom he was to become the father; viz. Messiah, the heir of all the promises, taking flesh of the seed of Abraham, and being cut off (put to death) in the flesh, to bring in that righteousness which was to be rewarded with the blessing, Gen. xvii. Rom. iv. 11. It was in the year of the world 2178 that Abraham, in the faith of this, was circumcised himself and all the males of his house; and in this view circumcision became, as it were, the initiating ordinance into the Israelitish church. During the last thirty-eight years that the Israelites wandered in the desert the Hebrew children were not circumcised; but immediately after their passing the Jordan the institution was revived, all the males being circumcised; which is called a circumcision of them the 'second time;' and this was a 'rolling away of the reproach of Egypt:' God hereby declaring that they were his free people and heirs of the promised land, and removing from them what they considered the shame of the Egyptians. Josh. v. 1—10.

When circumcision had continued a sacred institution about 1930 years its design was accomplished in the death of the blessed seed; but like many other ordinances of the Jewish church, which were originally intended to point forth his death and resurrection, circumcision had by this time become merely a practice among the greater part of the Jews; and it is thus unmeaningly continued among the scattered remains of that people at this day. Circumcision was not, however, confined to the Jews, though the high importance in which it was originally held by them seems best to account for such an indelicate operation being performed among other nations, who, though in a great measure ignorant of their design, practised in their own way many other institutions sacred to Israel. Herodotus and Philo Judæus observe, that circumcision obtained among the Egyptians and Ethiopians. Herodotus says, that the custom was very ancient among each people; so that there was no determining which of them borrowed it from the other. The same historian relates, that the inhabitants of Colchis also used circumcision; whence he concludes that they were originally Egyptians. He adds that the Phœnicians and Syrians were likewise circumcised, but that they borrowed the practice from the Egyptians. And lastly, that, a little before the time when he wrote, circumcision had passed from Colchis to the people inhabiting near Thermodoon and Parthenius. Marsham is of opinion that the Hebrews borrowed circumcision from the Egyptians, and that God was not the first author of it; citing Diodorus Siculus, and the fabulous Herodotus, as evidences on his side; which shows he knew not its design. The practice of circumcision among the Hebrews differed very considerably from that of the Egyptians. Among the first it was a ceremony of religion, and was performed on the eighth day after the birth of the child. Among the latter, a point of mere decency and cleanliness, and, as some will have it, of physical necessity; and was not performed till the thirteenth year, and then on girls as well as boys. The law of Moses ordained nothing with respect to the person by whom, the instrument with which, or the manner how, the ceremony was to »e performed; the instrument was generally a :nife of stone. The child is usually circumcised it home, where the father or godfather holds him n his arms, while the operator takes hold of the »repuce with one hand and with the other cuts t off; a third person holds a porringer, with sand n it, to catch the blood; then the operator ap- lies his mouth to the part, and having sucked he blood, spits it into a bowl of wine, and hrows a styptic powder upon the wound. This eremony was usually accompanied with great ejoicings and feasting; and it was at this time iat the child was named in presence of the ompany. The Jews invented several super- :itious customs at this ceremony, such as placing iree stools, one for the circumcisor, the second »r the person who holds the child, and the third »r Elijah, who, they say, assists invisibly at the eremony, &c. The Jews distinguished their roselytes into two sorts, according as they be- ame circumcised or not: those who submitted › this rite were looked upon as children of .braham, and obliged to keep the laws of Moses; ie uncircumcised were only bound to observe ie precepts of Noah, and were called Noachidæ. he Turks never circumcise till the seventh or ighth year, having no notion of its being neces- iry to salvation. The Persians circumcise their oys at thirteen, and their girls from nine to fteen. Those of Madagascar cut the flesh at iree several times; and the most zealous of the lations present catches hold of the preputium, nd swallows it. We are told that the Egyptian iptive women were circumcised; and the sub- cts of Prester John.

CIRCUMDU'CT, *v. a.* } Lat. *circumduco.*
CIRCUMDU'CTION, *n. s.* } To contravene; to illify; to cancel; a term of civil law. Hooker es the noun in its primitive and general sense; leading about; or a conducting round.

By long *circumduction* perhaps any truth may be rived from any other truth. *Hooker.*

Acts of judicature may be cancelled and *circum- ted* by the will and direction of the judge; as also the consent of the parties litigant, before the judge s pronounced and given sentence. *Ayliffe's Parergon.*

The citation may be *circumducted*, though the de- ndant should not appear; and the defendant must cited, as a *circumduction* requires. *Id.*

CIRCU'MFERENCE, *n. s.* Lat. *circumferen- ı.* The periphery; the line including and sur- inding anything. The space enclosed in a rcle. The external part of an orbicular body. n orb; a circle; any thing circular or orbi- ilar.

His ponderous shield
Ethereal temper, massy, large and round,
Behind him cast; the broad *circumference*
Hung on his shoulders like the moon. *Milton.*

So was his will
ronounced among the gods, and by an oath,
hat shook heaven's whole *circumference*, confirmed. *Id.*

Extend thus far thy bounds,
This be thy just *circumference*, O world! *Id.*

Because the hero is the centre of the main action, l the lines from the *circumference* tend to him alone. *Dryden.*

He first inclosed for lists a level ground,
The whole *circumference* a mile around. *Id. Fables.*

Fire, moved nimbly in the *circumference* of a circle, makes the whole *circumference* appear like a circle of fire. *Newton.*

The bubble, being looked on by the light of the clouds reflected from it, seemed red at its apparent *circumference*. If the clouds were viewed through it, the colour at its *circumference* would be blue. *Id. Optics*

CIRCUMFERENTOR, a mathematical instrument used by land-surveyors for taking angles by the magnetic needle. It is an instrument (where great accuracy is not required) much used in surveying in and about wood-lands, commons, harbours, sea-coasts, in the working of coal mines, &c. &c. where a permanent direction of the needle is of the most material consequence. The index is commonly of brass, and consists of an index and circle of one piece. The index is commonly about fourteen inches long, and an inch and a half broad; the diameter of the circle is about seven inches. On this circle is made a chart, whose meridian line answers to the middle of the breadth of the index, and is divided into 360 degrees. There is a brass ring soldered on the circumference of the circle, on which screws another ring with a flat glass in it, so as to form a kind of box for the needle, suspended on the pivot in the centre of the circle. The two sights screw on, and slide up and down the index; the spangle and socket are screwed on the back side of the circle for putting the head of the staff in.

An improvement of this instrument has been made (see Pl. VI. CIRCUMFERENTOR and CYPHER) which chiefly consists in an arm or index, G, so applied to the centre of the compass box, and within it, that at the time of observing, by only slipping a pin, *p*, out, the circle of degrees alone may move round, and leave the index, G, fixed. This index will remain stationary, from its being attached to the socket that screws on the head of the staffs. On the end of this index, next the degrees in the box, there is graduated a nonius scale, by which the circle of 360 degrees is subdivided into five minutes, or less if desired. To observe the quantity of an angle by the circumferentor:—Let it be required to find the quantity of the angle EKG; first place the instrument at K, with the fleur-de-lis of the chart towards you; then direct the sights to E, and observe what degrees are cut by the south end of the needle, which let be 296; then, turning the instrument about, direct the sights to G, noting then also what degrees are cut by the south end of the needle, which suppose 247. This done always subtract the lesser from the greater, as in this example, 247 from 296 the remainder is forty-nine degrees, which is the true quantity of the angle EKG. To take angles of altitude or depressions the instrument is turned down on its ball and socket, into a perpendicular position, and adjusted to the level by a plumb-line, *l*, that is hung on a pin at the back of the box, and made to coincide with a mark thereon. Then by looking through the small sight holes *s*, purposely made, the angles are shown on the circle of degrees by the nonius as before.

CI'RCUMFLEX, *n. s.* from Lat. *circumflexus.* An accent used to regulate the pronunciation of syllables, including or participating the acute and grave.

The *circumflex* keeps the voice in a middle tone, and therefore in the Latin is compounded of both the other. *Holder.*

Circumflex, in grammar. See Accent. It is seldom used among the moderns, unless to show the omission of a letter which made the syllable long and open. This is much more frequent with the French than among us: thus they write pâte for paste, tête for teste, fûmes for fusmes, &c. They also use the circumflex in the participles; some of their authors writing conneu, peu, others connû, pû, &c. Father Buffier is at a loss for the reason of this use of the circumflex. The form of the Greek circumflex was anciently the same with that of ours (viz. ˆ); being a composition of the other two accents (ˊˋ) in one. But the copyists, changing the form of the characters and introducing the running hand, changed also the form of the circumflex accent; and instead of making the just angle, rounded it off, adding a dash through too much haste; and thus produced this figure ˜, instead of this ˆ.

CIRCU'MFLUENCE, *n. s.* } Lat. *circumfluens, circumfluus.* An enclosure of waters. Flowing round any thing.
Circu'mfluent, *adj.*
Circu'mfluous, *adj.*

He the world
Built on *circumfluous* waters calm, in wide
Crystalline ocean. *Milton's Paradise Lost.*

Laertes' son, girt with *circumfluous* tides.
Pope's Odyssey.

I rule the Paphian race,
Whose bounds the deep *circumfluent* waves embrace;
A duteous people, and industrious isle. *Id.*

CIRCUMFORA'NEOUS, *adj.* Lat. *circumforaneus.* Wandering from house to house: as, a circumforaneous fiddler, one that plays at doors.

CIRCUMFU'SE, *v. a.* } Lat. *circumfusus*; *circum* and *fusilis.* To pour round; to spread every way. That which may be poured or spread round anything. The act of spreading round; the state of being poured round.
Circumfu'sile, *adj.*
Circumfu'sion, *n. s.*

Men see better when their eyes are against the sun or candle, if they put their hand before their eye. The glaring sun, or candle, weakens the eye; whereas the light *circumfused* is enough for the perception. *Bacon's Natural History.*

His army, *circumfused* on either wing. *Milton.*

Earth, with her nether ocean *circumfused,*
Their pleasant dwelling house. *Id.*

This nymph the god Cephisus had abused,
With all his winding waters *circumfused.*
Addison's Ovid.

Artist divine, whose skilful hands infold
The victim's horn with *circumfusile* gold.
Pope's Odyssey.

CIRCU'MGYRATE, *v. a.* } Lat. *circum* and *gyrus.* To roll round.
Circumgyra'tion, *n. s.*

The sun turns round his own axis in twenty-five days, from his first being put into such a *circumgyration.* *Cheyne.*

All the glands of the body be congeries of various sorts of vessels curled, *circumgyrated,* and complicated together. *Ray on the Creation.*

CIRCUMJA'CENT, *adj.* Lat. *circumjacens.* Lying round any thing; bordering on every side.

CIRCUMI'TION, *n. s.* from Lat. *circumeo, circumitum.* The act of going round.

CIRCUMLIGA'TION, *n. s.* Lat. *circumligo.* The act of binding round. The bond with which any thing is encompassed.

CIRCUMLOCU'TION, *n. s.* Lat. *circumlocutio.* A circuit or compass of words; periphrasis.

Virgil, studying brevity, could bring these words into a narrow compass, which a translator cannot render without *circumlocution.* *Dryden.*

I much prefer the plain Billingsgate way of calling names, because it would save abundance of time, lost by *circumlocution.* *Swift.*

The use of indirect expressions.

These people are not to be dealt withal, but by a train of mystery and *circumlocution.* *L'Estrange.*

CIRCUMMU'RED, *adj.* Lat. *circum* and *murus.* Walled round; encompassed with a wall.

He hath a garden *circummured* with bricks.
Shakspeare.

CIRCUMNA'VIGATE, *v. a.* } Lat. *circum* and *navigo.* To sail round. That which may be sailed round. The act of sailing round. One that sails round.
Circumna'vigable, *adj.*
Circumnaviga'tion, *n. s.*
Circumna'vigator, *n. s.*

The being of Antipodes, the habitableness of the torrid zone, and the rendering the whole terraqueous globe *circumnavigable.* *Ray on the Creation.*

What he says concerning the *circumnavigation* of Africa, from the straits of Gibraltar to the Red Sea, is very remarkable. *Arbuthnot on Coins.*

CIRCUMPLICA'TION, *n. s.* Lat. *circumplico.* The act of enwrapping on every side. The state of being enwrapped.

CIRCUMPO'LAR, *adj.* from *circum* and *polar.* Stars near the north pole, which move round it, and never set in the northern latitudes are said to be circumpolar stars.

CIRCUMPOSI'TION, *n. s.* from *circum* and *position.* The act of placing any thing circularly.

Now is your season for *circumposition,* by tiles or baskets of earth. *Evelyn's Kalendar.*

CIRCUMRA'SION, *n. s.* Lat. *circumrasio.* The act of shaving or paring round.

CIRCUMROTA'TION, *n. s.* Lat. *circum* and *roto.* The act of whirling round with a motion like that of a wheel; circumvolution; circumgyration. The state of being whirled round.

CIRCUMSCRI'BE, *v. a.* } Lat. *circum* and *scribo.* To enclose in certain lines and boundaries; to bound, to limit, to confine. Determination of particular form or magnitude. Limitation; boundary; contraction; confinement. Enclosing the superficies; marking the form or limits on the outside.
Circumscri'ption, *n. s.*
Circumscri'ptive, *adj.*

The good Andronicus
With honour and with fortune is returned;
From whence he *circumscribed* with his sword,
And brought to yoke, the enemies of Rome.
Shakspeare.

I would not my unhoused free condition
Put into *circumscription* and confine. *Id.*

He formed the powers of heaven
Such as he pleased, and *circumscribed* their being!
Milton.

He therefore *circumscribes* himself in rhimes,
And, swaddled in's own papers seven times,
Wears a close jacket of poetic buff,
With which he doth his third dimension stuff.
Marvell.

The action great, yet *circumscribed* by time;
The words not forced, but sliding into rhime. *Dryden.*

The external circumstances which do accompany men's acts, are those which do *circumscribe* and limit them. *Stillingfleet.*

You are above
The little forms which *circumscribe* your sex.
Southern.

Stones regular, are distinguished by their external forms: such as is *circumscriptive*, or depending upon the whole stone, as in the eagle-stone, is properly called the figure. *Grew.*

In the *circumscription* of many leaves, flowers, fruits, and seeds, nature affects a regular figure.
Ray on the Creation

O could the Muse in loftier strains rehearse
The glorious Author of the universe,
Who reins the winds, gives the vast ocean bounds,
And *circumscribes* the floating worlds their rounds;
My soul would overflow in songs of praise,
And my Creator's name inspire my lays. *Gay.*

Their lot forbade! nor *circumscribed* alone
Their growing virtues, but their crimes confined;
Forbade to wade through slaughter to a throne,
And shut the gates of mercy on mankind.
Gray's Elegy.

CIRCUMSPE'CT, *adj.*
Circumspe'ction, *n. s.*
Circumspe'ctive, *adj.*
Circumspe'ctively, *adv.*
Ci'rcumspectly, *adv.*
Ci'rcumspectness, *n. s.*

Lat. *circumspectus*. Cautious; attentive to every thing; watchful on all sides. Watchfulness on every side; caution; general attention. Lat. *circumspicio*, *circumspectum*. Looking round every way; attentive; vigilant; cautious. Cautiously; vigilantly; attentively with watchfulness every way; watchfully.

None are for me,
That look into me with considerate eyes:
High reaching Buckingham grows *circumspect*.
Shakspeare.

So saying, his proud step he scornful turned,
But with sly *circumspection*. *Milton's Paradise Lost.*

Their authority weighs more with me than the concurrent suffrages of a thousand eyes, who never examined the thing so carefully and *circumspectly*.
Ray on the Creation.

No less alike the politick and wise,
All sly slow things with *circumspective* eyes. *Pope.*

Let constant vigilance, thy footsteps guide,
And wary circumspection guard thy side. *Gay.*

Travel forces *circumspectness* on those abroad, who at home are nursed in security. *Wotton.*

CI'RCUMSTANCE, *n. s.* & [*v. a.*
Ci'rcumstant, *adj.*
Circumsta'ntial, *adj.*
Circumstantia'lity, *n. s.*
Circumsta'ntially, *adv.*
Circumsta'ntiate, *v. a.*

Lat. *circumstantia*, *circumstans*, *circumstantioles*. Something appendant or relative to a fact: the same to a moral action as accident to a natural substance. The adjuncts of a fact, which make it more or less criminal; or make an accusation more or less probable. Something adventitious, which may be taken away without the annihilation of the principal thing considered. Incident; event; generally of a minute or subordinate kind. Condition; state of affairs. It is frequently used with respect to wealth or poverty; as, good or ill circumstances. To place in particular situation, or relation to the things. Surrounding; environing. Accidental; not essential. Incidental; happening by chance; casual. Full of small events, particularly detailed. The appendage of circumstances; the state of any thing as modified by circumstances. According to circumstance; not essentially; accidentally. Minutely; exactly; in every circumstance or particular. To place in particular circumstances; to invest with particular accidents or adjuncts. To place in a particular condition, as with regard to power or wealth.

The fifth *circumstance* is how many times that he hath sinned (if it be in his minde), and how oft he hath fallen; for he that oft falleth in sinne, he despiseth the mercy of God and encreseth his sinne.
Chaucer. The Persones Tale.

Of these supposed crimes give me leave,
By *circumstance*, but to acquit myself. *Shakspeare.*

This fierce abridgment
Hath to it *circumstantial* branches, which
Distinction would be rich in. *Id.*

To worthiest things,
Virtue, art, beauty, fortune, now I see,
Rareness or use, not nature, value brings;
And such as they are *circumstanced*, they be.
Donne.

Virtue's but anguish, when 'tis several,
By occasion waked, and *circumstantial*. *Id.*

Of the fancy and intellect, the powers are only *circumstantially* different. *Glanville's Scepsis.*

If the act were otherwise *circumstantiated*, it might will that freely, which now it wills freely. *Bramhall.*

Our confessing or concealing persecuted truths, vary and change their very nature, according to different *circumstances* of time, place, and persons.
South.

He defended Carlisle with very remarkable *circumstances* of courage, industry, and patience. *Clarendon.*

Its beams fly to visit the remotest parts of the world, and it gives motion to all *circumstant* bodies.
Digby on the Soul.

He had been provoked by men's tedious and *circumstantial* recitals of their affairs, or by their multiplied questions about his own. *Prior's Dedic.*

A number infinitely superiour, and the best *circumstantiated* imaginable, are for the succession of Hanover. *Swift.*

When men are easy in their *circumstances*, they are naturally enemies to innovations.
Addison's Freeholder.

You guess each *circumstance* of Edwin's birth,
The parents' transport and the parents' care,
The gossips' prayer for wealth and wit and worth,
And one long summer day of indolence and mirth.
Beattie.

And *circumstance* that unspiritual good,
And miscreator, makes and helps along
Our coming evils, with a crutch-like rod,
Whose touch turns hope to dust—the dust all we have
trod.
Byron's Childe Harold.

CIRCUMSTANTIBUS, in law, by-standers, a term used for supplying and making up the number of jurors (in case any impanelled appear not, or appearing are challenged by any party), by adding to them so many of the persons present as will make up the number, in case they are properly qualified. This mode of filling up the deficiency is called tales de circumstantibus.

CIRCUMVA'LLATE, *v. a.* } Lat. *circum-*
CIRCUMVALLA'TION, *n. s.* } *vallo.* To enclose round with trenches or fortifications. The art or act of casting up fortifications round a place. The fortification or trench thrown up round a place besieged.

This gave respite to finish those stupendous *circumvallations* and barricadoes, reared up by sea and land.
Howell.

When the czar first acquainted himself with mathematical learning, he practised all the rules of *circumvallation* and contravallation at the siege of a town in Livonia.
Watts.

CIRCUMVALLATION, or line of circumvallation, in fortification, a rampart of earth, consisting of a parapet and trench, made round a town intended to be besieged, when any attempt to relieve the place is threatened. This line, being a fortification opposed to an enemy that may come from the open country, ought to have its defences directed so as to fire from the town; and the besiegers are to be encamped between this line and the place. The camp should be out of the reach of the shot of the place; and the line of circumvallation ought still more to be out of the reach of its artillery. See FORTIFICATION.

CIRCUMVE'CTION, *n. s.* Lat. *circumvectio.* The act of carrying round. - The state of being carried round.

CIRCUMVE'NT, *v. n.* } Lat. *circumvenio.*
CIRCUMVE'NTION, *n. s.* } To deceive; to cheat; to impose upon; to delude. Fraud; imposture; cheat; delusion. Prevention; pre-occupation. This sense is now out of use.

Whatever hath been thought on in this state,
That could be brought to bodily act, ere Rome
Had *circumvention.*
Shakspeare.

He, fearing to be betrayed or *circumvented* by his cruel brother, fled to Barbarossa.
Knolles's History of the Turks.

As his malice is vigilant, he resteth not to *circumvent* the sons of the first deceived.
Browne's Vulgar Errours.

Should man
Fall *circumvented* thus by fraud.
Milton's Paradise Lost.

The inequality of the match between him and the subtlest of us, would quickly appear by a fatal *circumvention*; there must be a wisdom from above to overreach this hellish wisdom.
South.

If he is in the city he must avoid haranguing against *circumvention* in commerce.
Collier of Popularity.

Obstinately bent
To die undaunted, and to *circumvent.* *Dryden.*

Nature supplied the wish she taught to crave,
None prowl'd for prey, none watch'd to *circumvent*,
To all an equal lot Heaven's bounty gave,
No vassal fear'd his lord, no tyrant feared his slave.
Beattie.

CIRCUMVE'ST, *n. s.* Lat. *circumvestio.* To cover round with a garment.

Who on this base the earth did'st firmly found,
And madest the deep to *circumvent* it round.
Wotton.

CIRCUMVOLA'TION, from Lat. *circumvolo.* The act of flying round.

CIRCUMVO'LVE, *v. a.* Lat. *circumvolvo.* To roll round; to put into a circular motion.

Could solid orbs be accommodated to phenomena, yet to ascribe each sphere an intelligence to *circumvolve* it, were unphilosophical. *Glanville's Scepsis.*

CIRCUMVOLU'TION, *n. s.* Lat. *circumvolutus.* The act of rolling round. The state of being rolled round.

The twisting of the guts is really either a *circumvolution*, or insertion of one part of the gut within the other.
Arbuthnot.

The thing rolled round another.

Consider the obliquity or closeness of these *circumvolutions*; the nearer they are, the higher may be the instrument.
Wilkins.

CI'RCUS, *n. s.* } Lat. *circus.* An open
CI'RQUE. } space or area for sports, with seats round for the spectators.

A pleasant valley like one of those *circuses*, which in great cities somewhere doth give a pleasant spectacle of running horses.
Sidney.

The one was about the *cirque* of Flora, the other upon the Tarpeian mountain.
Stillingfleet.

See the *cirque* falls! the' unpillared temple nods;
Streets paved with heroes, Tyber choaked with gods.
Pope.

CIRCUS, in antiquity, a large building, oval or circular, for the exhibition of shows to the populace. The Roman circus was a large oblong edifice, arched at one end; encompassed with porticoes, and furnished with rows of seats placed ascending over each other. In the middle was a kind of foot bank, or eminence, with obelisks, statues, and posts at each end. This served them for the courses of their bigæ and quadrigæ. There were from a remote period no less than ten of these buildings at Rome: the largest was erected by the elder Tarquin, called Circus Maximus, between the Aventine and Palatine mounts. It was so called, either because of its vast circumference, because the great games were celebrated in it, or because it was consecrated to the superior gods, viz. to Vertumnus, Neptune, Jupiter, Juno, Minerva, and the Dii Penates of Rome. Dionysius Halicarnassensis says, that it was three stadia and a half in length, and four jugera broad. All the curiæ, or divisions of the people, as established by Romulus, had their proper places assigned to them. The lower orders were separated from the rest; the nobles, the gentry, and magistrates, were seated according to their quality. The nearest and most convenient place to the shows was the orchestra, which was assigned to the senators and persons of the noblest quality. Before it was a large platform called podium, where the throne of the emperor was usually placed, and was also appropriated to the nobles and foreigners of the highest distinction, the senate, the tribunes of the people, the vestal virgins, and the person who appointed the games and paid the expenses. He was styled by the various names of Editor, Munerarius, Agonotheta, and Brabeuta; as publisher or declarer of the sports and their conditions, as the giver of them at his own expense, as judge of the victors, and as distributor of the prizes. And the prize that was bestowed upon the victors was called Brabium, or Brabeum, from Βραβεῖον, premium. See Amphitheatre.

The Romans were much attached to the games called Ludi Romani, Roman games, either on account of their antiquity, as being coeval with the Roman people, or because established by the Romans: and the games held there, the great games, ludi magni, because celebrated with more expense and magnificence than others; and because held in honor of the great god Neptune, who was their Consus. Those who insist that they were instituted in honor of the sun, confound the pompa circensis, or procession of the circus, with the games. The games of the circus were instituted by Evander, and re-established by Romulus: the pomp, or procession was only a part of the games, making the prelude thereof, and consisting of a simple cavalcade of chariots. Till the time of the elder Tarquin, they were held in an island of the Tiber; and were called Roman games; after that prince had built the circus, they took their name from it. There were six kinds of exercises in the circus: viz. 1. Wrestling, and fighting with swords, staves, and pikes. 2. Racing. 3. Saltatio, leaping. 4. Disci, quoits, arrows, and cestus; all which were on foot. 5. Horse coursing. 6. Courses of chariots, with two horses or with four. 7. Wild beast combats with dogs or men. In this last exercise, the combatants were at first divided into two squadrons; then into four; each bearing the names of the colors they wore; factio alba, russea, &c. Oenomaus invented this method of distinguishing the squadrons by colors. At first there were only white and red, then green and blue were added. The green was for those who represented the earth; the blue for the sea, &c.

CIRENCESTER, an ancient market and borough town of Gloucestershire. It was strongly fortified with walls in the time of the Romans, and is the Corinum of Ptolemy and the Durocornovium of Antoninus. The ruins of the walls and streets are to be seen in the adjacent meadows, where many Roman coins, chequered pavements, and inscriptions on marble, have been found. Two of the Roman consular ways cross each other at this town. The Fosseway, which comes from Scotland, passes through it to Totness in Devonshire; and the Irmin-street comes from Gloucester, and runs along to Southampton. Some years ago was discovered in a meadow near the town, an ancient building under ground, fifty feet long, forty broad, and four high, supported by two brick pillars, curiously inlaid with stones of various colors, and supposed to have been a Roman bath. The Stroudwater canal communicates with the town, and is of great advantage to its trade. The church is a large fine building, the windows of which contain the remains of some very beautiful painted glass. It is supported by two rows of pillars; and the tower is forty-four yards high, having twelve bells. Here were formerly two other churches, which are now destroyed. The town is governed by two high constables, and fourteen wardsmen, who govern seven distinct wards; and has sent two members to parliament ever since the year 1568. It has a free school, a charity school, with several almshouses; and is seated on the river Churn, eighteen miles south-west of Gloucester, and eighty-nine west by north of London.

CIRO-FERRI, an excellent Italian painter and architect, born at Rome in 1614. He was the disciple of Peter de Cortona, whose designs he imitated with such exactness, that it is difficult to distinguish them. He was principally employed by Pope Alexander VII. and his three successors, and died at Rome in 1689.

CIRRHUS, or Cirrus, a clasper, or tendril. See Botany. Tendrils are either simple, i. e. composed of one fibre or chord, as in the vetch, or compound. i. e. consist of two, three, or more, as in the everlasting pea. Bitter sweet, solanum, dulcamara, bignonia, and ivy, send forth tendrils which plant themselves like roots in the adjacent walls, or the bark of the neighbouring trees. Dr. Grew says, they are like trunk roots, a mean betwixt a root and a trunk, but a compound o both, as may be gathered from their circumvolutions, in which they mutually ascend and descend. In the mounting of the trunk, they serve for support.

CIRRI, in ichthyology, certain oblong and soft appendages, not unlike little worms, hanging from the under jaws or mouths of some fishes: these cirri, commonly translated beards, afford marks to distinguish the different species of the fishes on which they are found.

CIRTA, in ancient geography, the metropolis and royal residence, in the inland parts of Numidia Proper, near the Ampsaga. It was very rich, and was called Colonia Sittianorum when in the hands of Syphax. The colony was led by one P. Sittius, under the auspices of Cæsar, and was surnamed Julia. It is now called Constantina, and belongs to Algiers.

CISALPINE, any thing on this side the Alps. The Romans divided Gaul, and the country now called Lombardy, into Cisalpine and Transalpine. That which was Cisalpine with regard to the Romans, was Transalpine with regard to us; cis signifying on this side, and trans on the farther side.

Cisalpine Republic, an extensive democratic state of Italy, established during the revolution in France, and destined to perish with it. It comprehended what was formerly called Austrian Lombardy, the territories of Bergamo, Bresciano, and Cremona, the town and fortress of Mantua, the territory of Peschiera, part of the ci-devant Venetian States, all the ancient territory of Modena, the principalities of Mantua and Carrara, the territory of Chiavenna, and the three legations of Bologna, Ferrara, and Romagna, a part of the Veronese, the ci-devant duchy of Massa, and the Valteline; being bounded on the north by Switzerland, the Tyrol, and the late maritime division of Austria; on the east by the Adriatic and Austria Proper; on the south by the late Roman and Etruscan republics, the Mediterranean and Parma; and on the west by Parma and Piedmont, lying between long. 9° 0′ and 14° E., and between lat. 43° and 47° 0′ N. The Cisalpine republic was finally established and defined by the treaty of Campo-Formio, on the 17th of October 1797; and acknowledged by the emperor, the pope, the kings of Sardinia and Spain, and the French, Batavian, and Helvetic republics. Buonaparte, the first consul of France, was afterwards chosen president of the republic, and the name Cisalpine abolished for that of Italian; which, in May 1805, gave way to the more pompous title of the Kingdom of Italy.

CISLEU, in Hebrew chronology, the ninth month of their ecclesiastical, and third of their civil, year, answering nearly to our November.

CISPADANA, or the CISPADANE REPUBLIC, was a small democratic state, founded in October 1796, upon the plan of the French government. It was the first of the kind in Italy, and laid the foundation of the CISALPINE REPUBLIC, which see.

CISPADANA GALLIA, in ancient geography, a district of Italy, to the south of the Po, occupied by the Gauls in the time of the kings of Rome, separated from Liguria on the west, as is thought, by the Iria, running from south to north into the Po; bounded on the south by the Appenine, and on the east by the Adriatic. The term is formed analogically with respect to Rome. Ptolemy calls the Gallia Cispadana peculiarly Gallia Togata, and describes it as extending between the Po and Appenines, to the Sapis and Rubicon.

CISSA, or CISSUM, a town of Hither Spain, in Lacetania, on the east side of the Iberus, thought to be Guissona; where the Carthaginians were first defeated by Scipio. Also a town of Thrace, situated on the river Ægos-Potamos.

CISSAMPELOS, in botany, a genus of the monadelphia order, and diœcia class of plants; natural order eleventh, sarmentaceæ. Male CAL. tetraphyllous: COR. none: NECTARIUM wheel-shaped: STAM. four, with their filaments grown together. Female CAL. monophyllous, and ligulated roundish: COR. none: STYLES three: SEED monospermous berry. There are five species: the chief are: 1. C. caapeba, a native of the warmest parts of America. The root applied externally, is said to be an antidote against the bites of venomous serpents. The plant being infused in water, quickly fills the liquor with a mucilaginous substance, which is as thick as jelly; whence the name of freezing wyth, by which this genus of plants has been distinguished by the Brazilians: and, 2. C. pareira, also a native of the warmest parts of America; having peltate leaves, and heart-shaped flowers.

CISSOID, in geometry, a curve of the second order, first invented by Diocles, whence it is called the cissoid of Diocles. See FLUXIONS.

CISSUS, the wild grape, a genus of the monogynia order, and tetrandria class of plants; natu[illegible]der forty-sixth, hederaceæ. The berry is monospermous, surrounded by the calyx, and a quadripartite corolla. There are nineteen species, all natives of Jamaica, and some of the other islands in the warmest parts of America. They send out slender branches, having tendrils at their joints, by which they fasten to the neighbouring trees, bushes, and any other support, mounting to a considerable height. The fruit of some of the species are eaten by the negroes.

CIST, *n. s.* Lat. *cista.* A case; a tegument; commonly used in medicinal language for the coat or enclosure of a tumor.

CI'STED, *adj.* from *cist.* Enclosed in a cist, or bag.

CISTERTIANS, in church history, a religious order founded in the eleventh century by St. Robert, a Benedictine. They became so powerful, that they governed all Europe, both in spirituals and temporals. Cardinal de Vitri describing their observances, says, they neither wore skins nor shirts; nor ever eat flesh, except in sickness; and abstained from fish, eggs, milk, and cheese; they lay upon straw beds, in tunics and cowls: they rose at midnight to prayers; they spent the day in labor, readings, and prayer; and in all their exercises observed a continual silence. The habit of the cistertian monks is a white robe, in the nature of a cassock, with a black scapulary and hood, and is girt with a wooden girdle. The nuns wear a white tunic, and a black scapular and girdle. The ruins of a famous cistertian abbey are still to be seen in the parish of New-Abbey, to which it gave name, in Kirkcudbrightshire; founded by Dervigilla, the mother of John Baliol, king of Scotland.

CI'STERN, *n. s.* Lat. *cisterna.* A receptacle of water for domestic uses.

'Tis not the rain that waters the whole earth, but that which falls into his own *cistern*, that must relieve him.

South.

A reservoir; an enclosed fountain.

Had no part as kindly staid behind
In the wide *cisterns* of the lakes confined,
Did not the springs and rivers drench the land,
Our globe would grow a wilderness of sand.

Blackmore.

Any receptacle or repository of water.

So half my Egypt were submerged, and made
A *cistern* for scaled snakes.

Shakspeare.

But there's no bottom, none,
In my voluptuousness: your wives, your daughters,
Your matrons, and your maids, could not fill up
The *cistern* of my lust.

Id.

CISTERN, a reservoir for the reception of water. Anciently there were cisterns all over the country in Palestine. There were some likewise in cities and private houses. As the cities for the most part were built on mountains, and the rains fell regularly in Judea at two seasons in the year only, in spring and autumn, the people were obliged to keep water in cisterns in the country for the use of their cattle, and in the cities for the conveniency of the inhabitants. There are still cisterns of very large dimensions to be seen in Palestine, some whereof are 150 paces long, and fifty-four wide.

CI'STUS, *n. s.* Lat. The name of a plant. The same with rockrose.

CISTUS, in botany, a genus of the polyandria order, and polyandria class of plants; natural order twentieth, rotaceæ: CAL. pentaphyllous, with two of the leaves smaller than the rest. The seeds are many, and contained in a capsule. There are about forty-eight species, most of them natives of the southern parts of Europe, but hardy enough to bear the open air in this country. They are beautiful evergreen shrubs, generally very branchy quite from the bottom, and forming distinct heads. They are very ornamental in gardens, not only as evergreens, making a fine variety at all seasons with their leaves of different figures, sizes, and shades of green and white, but also as flowering shrubs, being very profuse in most elegant flowers of white, purple, and yellow colours. These flowers only last for one day; but there is a continued succession of new ones for a month or six weeks on the same plants; and where there are different species, they exhibit a constant bloom for nearly three months. They are propagated either by seeds or cuttings, and thrive best in a dry soil. Gum labdanum is found upon a species of cistus which grows naturally in the Levant, and is therefore called ladaniferus. See LABDANUM.

CITADEL, n. s. Fr. *citadelle*. A fortress; a castle, or place of arms, in a city.

As he came to the crown by unjust means, as unjustly he kept it, by force of stranger soldiers in citadels, the nests of tyranny and murderers of liberty. *Sidney.*

I'll to my charge, the citadel, repair. *Dryden.*

CITADELLA, or CIUDADELLA, a seaport of the island of Minorca, once capital of the island, situated on the western coast, and surrounded with walls and bastions. It has harbour for small craft; and contains a cathedral, two churches, and four convents. It is particularly exposed to west and south winds, and terminates in marshy shores. It was taken, with the whole island, by general Stanhope and the confederate fleet in 1708, and ceded to Great Britain by the treaty of Utrecht in 1713. It was taken by the French after a brave defence in 1756; but restored at the peace. In 1782 it was taken by the Spaniards, and confirmed to them at the subsequent peace. It is twenty-seven miles west of Port Mahon.

CITADINESCA, in natural history, a name given by some writers to the Florentine marble, which is supposed to represent towns, palaces, ruins, rivers, &c. These delineations are merely accidental, and are commonly much assisted by the imagination; though the natural lines of a stone may sometimes by chance represent the ruins of some ancient building, or the course of a river. In England there is a kind of septaria, or ludus Helmontii, which has sometimes beautiful, though very irregular, delineations of this kind. The Florentine marble, as we see it wrought up in the ornaments of cabinets, &c., owes a great deal to the skill of the workman, who always pick out the proper pieces from the mass, and dispose them in the work so as to represent what they please.

CITHÆRON, in ancient geography, a mountain and forest of Bœotia, celebrated by the ancient poets. To the west it ran obliquely, a little above the Sinus Corinthiacus, where its rise is contiguous to the mountains of Megara and Attica; then terminating into plains, it terminates at Thebes. Famous for the fate of Pentheus and Actæon; the former torn by the Bacchæ, the latter by his dogs; as also for the orgies or revels of Bacchus.

CITHARA, in antiquity, a musical instrument, the precise structure of which is not known; some think it resembled the Greek Δ; and others the shape of a half-moon. At first it had only three chords; but the number was at different times increased to eight, to nine, and lastly to twenty-four. It was used in entertainments and private houses, and played upon with a plectrum or quill. [illegible]

CITHAREXYLON, fiddle-wood; a genus of the angiospermia order, and didynamia class of plants; natural order, personatæ: CAL. quinquedentated, campanulated, and wheel-shaped, with the segments villous on the upper side: [illegible] dispermous. Several species, natives of the warmer parts of America and the West Indies, where they grow to be large trees, and are adorned with white flowers growing in spikes. In Britain they appear only as shrubs, and must be constantly retained in the stove, where they make a fine appearance, being beautiful evergreens. They may be propagated either by seeds or cuttings.

CITE, v. a.
CITAL, n. s.
CITATION, n. s.
CITATORY, adj.
CITER, n. s.

Lat. *cito*. To summon; to answer in a court. To enjoin; to call upon another authoritatively; to direct; to summon. To quote. Quotation; the citation of any passage from another author, or of another man's words. The passage or words quoted; a quotation. The derivative meaning implies reproof; impeachment. In law, citation signifies the calling a person before the judge, for the sake of trying the cause of action commenced against him.

He made a blushing cital of himself,
And chid his truant youth. *Shakspeare.*

I speak of you, Sir Thurio;
For Valentine, I need not cite him to it. *Id.*

He held a late court, to which
She oft was cited by them, but appeared not. *Id.*

Demonstrations in scripture may not otherwise be shewed than by citing them out of the scripture. *Hooker.*

Forthwith the cited dead,
Of all past ages, to the general doom
Shall hasten. *Milton.*

The power of citing, and dragging the defendant into court, was taken away. *Ayliffe's Parergon.*

If a judge cite one to a place, to which he cannot come with safety, he may freely appeal, though no appeal be interposed in the letters citatory. *Id.*

These causes cited a consumption endemick to this island: there remains a cure of such as may proceed from any country. *Harvey on Consumptions.*

This sad experience cites me to reveal,
And what I dictate is from what I feel. *Prior.*

I must desire the citer henceforward to inform us of his edition. *Atterbury.*

The letter-writer cannot read these citations without blushing, after the charge he hath advanced. *Id.*

View the principles in their own authors, and not in the *citations* of those who would confute them.

Watts.

CI'TERN, *n. s.* Lat. *cithara.* A kind of harp; a musical instrument.

At what time the heathen had profaned it, even in that was it dedicated with songs and *citherns*, and harps and cymbals.

Macc.

CITIUM, Cetium, or Cittium, in ancient geography, a town in the south of Cyprus, famous for the birth of Zeno, founder of the sect of Stoics; 200 stadia west of Salamis. It was founded by a colony of Phœnicians, called Chetim: and hence not only Cyprus, but the other islands and many maritime places, are called Chetim by the Hebrews.

A Citizen of ancient Rome was distinguished from a stranger, because the latter belonged to no certain commonwealth subject to the Romans. A citizen was either by birth or election; and sons might derive the right from their fathers. To be a Roman citizen, it was necessary to be an inhabitant of Rome, to be enrolled in one of the tribes, and to be capable of dignities. Those to whom were granted the rights and privileges of Roman citizens, were only honorary citizens. It was not lawful to scourge a citizen of Rome. For modern privileges of the kind, See Freeman and London.

CITRIC Acid, in chemistry, the juice of lemons or limes deprived of its mucilage. For chemical purposes this acid is best obtained pure by saturating boiling lemon-juice with powdered chalk, on which the saline compound falls to the bottom, and leaves the mucilage suspended in the fluid, which must be decanted off and the precipitate washed till quite clean. Then add a quantity of sulphuric acid, equal to the chalk in weight, and diluted with ten parts of water, and boil it for a few minutes, on which the sulphuric acid combines with the earth and leaves the citric acid dissolved in the fluid. If this fluid is evaporated to the consistence of a syrup, the pure citric acid will appear in thin needle-like crystals. For the common purposes of the table this juice may be preserved under a thin stratum of oil for a considerable time; in the East Indies it is evaporated into a thick extract or role, and kept in closed bottles, but no method seems so perfect as that of concentrating it by frost, which first separates the mucilage and afterwards the watery solution, till it leaves the acid with eight times its usual power, as may be proved by its requiring eight times the quantity of alkali to neutralise it. Its use in saline draughts, sauces, &c. is too well known to need any comment or remark. It is among the vegetable acids the one which most powerfully resists decomposition by fire. In a dry and warm air it seems to effloresce; but it absorbs moisture when the air is damp, and at length loses its crystalline form It is not altered by any combustible substance. The most powerful acids decompose it less easily than they do other vegetable acids; but the sulphuric evidently converts it into acetic acid.

The affinities of the citric acid are arranged by Vauquelin in the following order: barytes, lime, potash, soda, strontia, magnesia, ammonia, alumina. Those for zircone, glucine, and the metallic oxides, are not ascertained.

All the citrates are decomposed by the powerful acids, which do not form a precipitate with them, as with the oxalates and tartrates. The oxalic and tartaric acids decompose them, and form crystallised or insoluble precipitates in their solutions. All afford traces of acetic acid, or a product of the same nature, on being exposed to distillation; this character exists particularly in the metallic citrates. Placed on burning coals they melt, swell up, emit an empyreumatic smell of acetic acid, and leave a light coal. All of them, if dissolved in water, and left to stand for a time, undergo decomposition, deposit a flocculent mucus which grows black, and leave their bases combined with carbonic acid, one of the products of the decomposition. Before they are completely decomposed, they appear to pass to the state of acetates.

Citric acid, being more costly than tartaric, may be occasionally adulterated with it. This fraud is discovered by adding slowly to the acid dissolved in water, a solution of subcarbonate of potassa, which will give a white pulverulent precipitate of tartar, if the citric be contaminated with the tartaric acid.

CI'TRINE, *adj.* Lat. *citrinus.* Lemon-colored; of a dark yellow.

His nos wos high; his eyen bright *citris*;
His lippes round; his colour was sanguin.

Chaucer's Canterbury Tale.

The butterfly, papilio major, has its wings painted with *citrine* and black, both in long streaks and spots.

Grew.

By *citrine* urine of a thicker consistence, the saltness of phlegm is known. *Floyer on the Humours.*

Ci'trine, *n. s.* from Lat. *citrinus.*

A species of crystal of an extremely pure, clear, and fine texture, generally free from flaws and blemishes. It is ever found in a long and slender column, irregularly hexangular, and terminated by an hexangular pyramid. It is from one to four or five inches in length. This stone is very plentiful in the West Indies. Our jewellers have learned to call it *citrine*; and cut stones for rings out of it, which are mistaken for topazes.

Hill on Fossils.

CITRINUS, in natural history, a peculiar species of sprig crystal, which is of a beautiful yellow. Many of the common crystals, when in the neighbourhood of lead mines, are liable to be accidentally tinged yellow, by an admixture of the particles of that metal; and all these, whether finer or coarser, have been too frequently confounded together under the name of citrine: but Dr. Hill has ascertained this to be a peculiar species of crystal, different from all the others in form as well as in color; and distinguished by the name of ellipomacrostylum lucidum flavescens, pyramide brevi. It is never found colorless like the other crystals, but has great variety of tinges, from that of the deeper ochres to a pale lemon color. It is sometimes found in Bohemia. The pyramid of this crystal is always finer than the column.

CI'TRON-TREE, *n. s.* from Lat. *citrus.* It has broad stiff leaves, like those of the laurel. The flowers consist of many leaves, expanded like a rose. The pistil becomes an oblong, thick, fleshy fruit, very full of juice. Genoa is the great nursery for these trees. One sort, with a pointed fruit, is in so great esteem, that the single fruits are sold at Florence for two shillings each.

> May the sun
> With *citron* groves adorn a distant soil.
> *Addison.*

Citron-tree, in botany. See Citrus.

CITRON-WATER, *n. s.* Aqua-vitæ, distilled with the rind of citrons.

> Like *citron-waters* matrons' cheeks inflame.
> *Pope.*

Citron Water, a spirituous cordial thus made: take of fine thin lemon-peel, eighteen ounces; of orange-peel nine ounces; perfect nutmegs three ounces; rectified spirits of wine two gallons and a half. Digest in balneo mariæ for one night; draw off with a slow fire; then add as much water as will just make the matter milky (which will be about seven quarts or two gallons); and, lastly, add two pounds of fine sugar. This composition may be improved by fresh elder flowers, hung in a cloth in the head of the still, sprinkled with ambergris in powder, or its essence.

Citron Wood, the wood of an American tree, called by the natives candle-wood; because, being cut into splinters, it burns like a candle. The tree is frequent in the Leeward Islands, and grows to a considerable size: the leaves are like those of the bay tree, but of a finer green; the flower is sweet and much like those of the orange; the fruit succeeding these is black, and of the size of a pepper-corn. It is of no known use in medicine; but is used in France and Germany by the turners, being a fine firm grained wood, and taking a fine polish, and with age becoming of a very beautiful brown.

CITRUL, *n. s.* The same with pumpion, so named from its yellow color.

CITRUS, the citron-tree: a genus of the polyadelphia order, and icosandria class of plants: cal. quinquefid; the petals oblong, and five in number; the antheræ twenty, with their filaments grown together so as to form various pencils. The fruit is a nine-celled berry. There are six species; viz.

1. C. aurantium, the orange-tree, has an upright trunk dividing upward into a branchy, regular head, from five to ten or twelve feet high; oval, spear-shaped, entire leaves, having winged foot-stalks and numerous white flowers at the sides of the branches, succeeded by globular fruit compressed at both ends. The most noted varieties are, 1. the Seville orange. This is a very handsome tree and the hardiest of any; as in this country it shoots freely, produces large and beautiful leaves, flowers stronger, &c. The fruit is large, rough-rinded, and sour, of excellent quality for household uses. 2. The China orange. This tree has moderately sized leaves, and a smooth thin-rinded sweet fruit, of which there are several varieties in warm countries, where they grow in the open ground. 3. The great shaddock orange, or pumplemoes, grows larger and stronger than the foregoing, with large, thick, and somewhat serrated leaves, and very large fruit, having a reddish pulp. It derives the name of shaddock from a captain of that name that first brought it from the East Indies. 4. The forbidden fruit tree, in trunk, leaves, and flowers, very much resembles the common orange-tree; but the fruit when ripe, is larger and longer than the orange. It has somewhat the taste of shaddock; but far exceeds it, as well as the orange, in its delicious taste and flavor. 5. The horned orange is a tree of moderate size, producing fruit which divides, and the rind runs out into divisions like horns. 6. The hermaphrodite orange is a moderate sized tree, producing fruit shaped partly like an orange and partly like a citron. 7. The dwarf orange tree, or nutmeg orange, has a long stem and small bushy head, growing two or three feet high; small oval leaves in clusters and numerous flowers in clusters, covering the branches, succeeded by a very small fruit.

2. C. lima, the lemon tree, has an upright smooth trunk, divided upward into a branchy regular head; from twelve to fifteen feet high; large, oval, spear-shaped, pointed, slightly sawed leaves, on linear foot-stalks: and many flowers from the sides of the branches succeeded by large oval fruit prominent at the top.

3. C. medica, the citron tree, has an upright smooth trunk, divided at top into a branchy strong shooting, full head, from about five to fifteen feet high, adorned with large oval, spear-shaped, thick leaves, having linear foot-stalks, and numerous flowers from the sides of the branches, succeeded by very large oblong oval, pointed, rough-rinded fruit. The varieties are 1. citron tree with sour fruit; 2. with sweet fruit; 3. with long fruit; 4. with warted fruit; 5. with recurved fruit; and 6. with blotched leaves. These are the most remarkable varieties of the three foregoing species of citrus: but besides these there are a great number of others; and indeed, in those countries where they grow naturally, the varieties may be multiplied without end like those of our apples and pears. The flowers of all the species and varieties are formed each of five spreading petals, appearing here principally in May and June; and the fruit continue setting in June and July, and ripen the year following.

4. C. trifoliata, the Japanese citron, is a thorny shrub growing naturally in Japan. The trunk acquires by age and culture the thickness of a tree. The branches and shoots are unequal; in some parts compressed, in others swelling, especially about the spines. These proceed singly from the stem and branches; are straight, run out from a broad base into a very sharp point; and are protruded from the wood, with the common bark of which they are likewise invested. The wood is loose and soft; the bark of a shining green, moist, and easily parting from the wood. The leaves are few in number, sawed on the edges, veined, placed without order, but generally growing under the spines. They grow by threes, like those of trefoil, upon the extremity of a common foot-stalk, which is furnished on each side with a membranaceous fringe or margin, somewhat resembling the pedicles of the orange. The upper surface of the leaves is of a bright lucid green the lower dark and herbaceous. The flowers, which resemble those of the medlar, proceed singly from the arm-pits of the leaves, are white,

possessed of no great degree of fragrance, and consist of five petals. The fruit is equally beautiful with a middle sized orange; their internal structure is also pretty much the same: only the pulp is glutinous, of an unpleasant smell, and a harsh disagreeable taste. The seeds have the same taste with the pulp, and are shaped exactly like those of the orange.

The first three species of citrus merit particular attention. They are elegant evergreens, rising in this country from about five to ten feet in height; forming full and handsome heads, closely garnished with beautiful large leaves all the year round, and putting forth a profusion of sweet flowers in spring and early in summer; which even in this climate are often succeeded by fruit. Though all the varieties were originally obtained by seed, yet the only certain method of continuing the approved varieties is by budding or inarching them on stocks raised from seed to a proper size. As the young trees however are brought in plenty from abroad, this method is seldom practised in this country: but for curiosity, it may be done by those who are so inclined, in the following manner: Early in spring procure some kernels, which may be had in plenty from rotten fruits, or others that are properly ripened, observing that for stocks, the citron, lemon, and Seville orange, as being the freest shooters, are to be preferred; and of these the citron is the strongest. Sow the kernels in March, in pots of rich light earth half an inch deep, and plunge them in a hot-bed under frames and glasses. Dung or tan may be used, but the latter is preferable, giving air, and frequent sprinklings of water. In two or three weeks, the plants will come up; and, in six or eight weeks more, they will be advanced four or five inches or more in height. They must now have more air and water; and about the middle of June harden them to the full air, in which let them remain till October; then remove them into the green-house to stand till the spring, and in March or April plant them singly in small pots; being careful to shake them out of the seed-pots with their roots entire. They must be watered immediately after planting, and the watering must be occasionally repeated. After this they are to be treated as woody exotics of the green-house; and in a year or two the largest of those designed for stocks will be fit for budding. The operation for budding is performed in the month of August, and is done in the common way. As soon as the operation is finished, the pots with their plants must be placed in the green-house, or in a glass case; or where there is the convenience of a spare bark pit, where the heat of the bark is almost exhausted, the pots may be plunged therein for two or three weeks. In either case, however, the air must be admitted freely by opening the front glasses: allowing also a slight shade of mats in the middle of hot sunshine days, and supplying them with water every two or three days during this kind of weather. In three or four weeks the buds will be united with the stock; when it will be proper to loosen the bandages, that they may have room to swell; the buds, however, will all remain dormant till the next spring. But the most cheap and expeditious method of procuring a collection of these kinds of trees is by having recourse to su are imported from Spain, Italy, and Po A south wall, in a dry situation, is prop training them as wall trees; against which be erected wooden frame-work sloping, e fixed or moveable, for the support of glass for winter. For the greater protection o trees in severe frosts, there may be a fre with a flue or two carried along a low wa the fronts and ends. To have the trees as s ards, a more capacious and lofty glass should be erected against the wall, in the ma of a hot-house, but higher; in this one or t rows of orange trees may be planted, suf them to run up as standards, with only so cessary pruning, just to preserve their regul In some places there are lofty moveable g cases, so that two or three rows of trees are pla in a conspicuous part of the pleasure-gro In winter the frame is put over them, an summer wholly taken away; so that they ap like a little orange grove growing in the o ground. The flowering and fruit-setting se of all the sorts of citrus is in June and J They are often, especially the orange trees, gr loaded with blossoms; and when these se very thick, it is proper to thin them a lit taking off the smallest. As the trees cont blowing and setting their fruit for three mo when a full crop of fruit is set, it is of benefi the trees and fruit to gather off the superabun dant blossoms as they are produced; though so permit them to remain on account of their a pearance.

The fruits of the citron, lemon, and orange trees, yield very agreeable acid juices; which besides the purposes to which they are comm applied, are much used in medicine. The ju of lemons is very frequently used for neutraliz alkaline salts for saline draughts. The citron seldom used in this country; though its peel, a well as that of lemon, is candied and sold as sweetmeat. The yellow peel of the lemon is a agreeable aromatic, as is also that of the orange and in cold phlegmatic constitutions they pro excellent stomachics and carminatives, promot appetite, warming the habit, and strengthen the tone of the viscera. Orange-peel, howev is very considerably warmer than that of lemo and abounds more in essential oil: to this circu stance, therefore, due regard ought to be had i the use of these medicines. The flavor of orange peel is likewise less perishable than that of lemons Both are ingredients in many officinal prepara tions. The young fruits of the Seville orange dried are used in medicine under the name o aurantia curaflaventia. They are a moderately warm bitterish aromatic, of a sufficiently agreeable flavor. The flowers of the orange tree hav been for some time in great esteem as a perfume They are highly odoriferous, of a somewhat warm and bitter taste. They yield their flavor by infusion to rectified spirit, and in distillation both to spirit and water. The bitter matter is dissolved in water, and, on evaporating the decoction, remains entire in the extract. The distilled water was formerly kept in the shops, but, on account of the great scarcity of the flowers, is now laid aside; it is called by foreign writers aqua the. An oil distilled from these flowers is ght from Italy under the name of oleum, or ntia neroli.

CITTA CASTELLANA, a town of Italy, in the rimony of St. Peter, is twenty-three miles th of Rome. Near this town the French, under general Macdonald, were attacked in their ampments, December 12th, 1798, by the Nealitans, who surrounded them on all sides, but re repulsed and completely routed, with the s of 2400 men, 3000 muskets, their military est, and whole baggage.

CITTA DUCALE, a town of Naples, in the pronce of Abruzzo Ulterior, founded in 1308, by obert, duke of Calabria, and nearly destroyed, 1703, by an earthquake. It is a bishop's see, nd lies eighteen miles west of Aquila.

CITTA NUOVA, a town of Italy, in the marquiate of Ancona, containing thirty-one churches nd convents. It is situated on the coast of the Adriatic, ten miles from Loretto.

CITTA VECCHIA, CITTA NOTABILE, or MALTA, is an old town in the centre, and on the highest point, of the island of Malta, once the capital. It is said to have been built by the Phœnicians before they founded Carthage, and to have been called by them Melita, the ancient name of the island, and by the Saracens, Medina. Alphonso, king of Sicily, in the fifteenth century, gave it the name of Citta Notabile. It has been, in modern times, much reduced, especially since Valetta has been the residence of the public authorities. It is the see of a bishop, and contains, besides a large and handsome cathedral, several other churches and convents. From the town may be seen the whole island, and sometimes the coasts of Africa and Sicily. Here is also an ancient palace for the grand master; and near the town some ancient catacombs, and a very extensive cave, not far from the mouth of which, St. Paul is said to have been shipwrecked.

CITTERN, a musical instrument resembling the guitar, for which it has been frequently mistaken. Anciently it was called the cistrum, and till lately was held in great contempt both in France and Britain. The practice on it being extremely easy, it was formerly the amusement of lewd women and their visitors; insomuch, that in many of the old English dramatic writers, it is made the symbol of a woman that lived by prostitution.

CI'TY, *n. s.* & *adj.* } Fr. *cité*; Lat. *civitas*.
CI'TIZEN, *n. s.* & *adj.* } In the English law, a town corporate, that has a bishop and a cathedral church. A large collection of houses and inhabitants. Sometimes used to designate the inhabitants only; and sometimes the place without the inhabitants. The word citizen, as an adjective, is used only by Shakspeare.

So sick I am not, yet I am not well;
But not so *citizen* a wanton, as
To seem to die ere sick. *Shakspeare.*

CITIZEN, as a noun, distinguishes an individual franchised with the privileges appertaining to a city; a tradesman residing in a city, from a gentleman; and sometimes it similarly designates an inhabitant, or dweller, in any place. Cit and citess are vulgar contractions of citizen and citizeness. The latter is to be found only in Dryden.

By veray force, at Gaza on a night,
Maugre the Philistines of that *citee*,
The gates of the toun he hath upplight,
And on his bak yearied them hath he,
High on a hill, where as men might hem see.
O noble, mighty, Sampson, lefe and dere!
Haddest thou not told to women thy secree,
In all this world ne had ther ben thy pere.
Chaucer.

———— Running day and night
From realm to realm, from *city*, street and town;
Why dost thou wear thy body to the bones?
And mightst at home sleep in thy bed of down,
And drink good ale so nappy, for the nones.
Wyatt.

From thence, far off, he unto him did shew,
A little path, that wos both steepe and long,
Which to a goodly *city* led his view;
Whose wals and towres were builded high and strong
Of pearle and precious stone, that earthly tong
Cannot describe, nor wit of man can tell;
Too high a ditty for my simple song.
The *citty* of the Greate King hight it well.
Spenser.

What is the *city* but the people?——
——True, the people are the *city*.
Shakspeare.

I do suspect I have done some offence,
That seems disgracious in the *city's* eye. *Id.*
His enforcement of the *city* wives. *Id.*
He, I accuse,
The *city* ports by this hath entered. *Id.*
When he speaks not like a *citizen*,
You find him like a soldier. *Id.*

All inhabitants within these walls are not properly *citizens*, but only such as are called freemen.
Raleigh's History.

The country hath his recreation, the *city* his severall gymnicks and exercises, may-games, feasts, wakes, and merry-meetings, to solace themselves.
Burton. Anat. Mel.

Why should'st thou here looke for perpetual good,
At every loss 'gainst heaven's face repining?
Do but behold where glorious *cities* stood,
With gilded tops and silver turrets shining;
There now the hart fearless of greyhound feeds,
And loving pelican in safety breeds:
There screetching satyrs fill the people's empty stedes
[places]. *Fletcher's Purple Island.*

Far from noisy Rome secure he lives,
And one more *citizen* to Sibyl gives. *Dryden.*

Cits and *citesses* raise a joyful strain;
'Tis a good omen to begin a reign. *Id.*

Men seek safety from number better united, and from walls and fortifications, the use whereof is to make the few a match for the many: this is the original of *cities*. *Temple.*

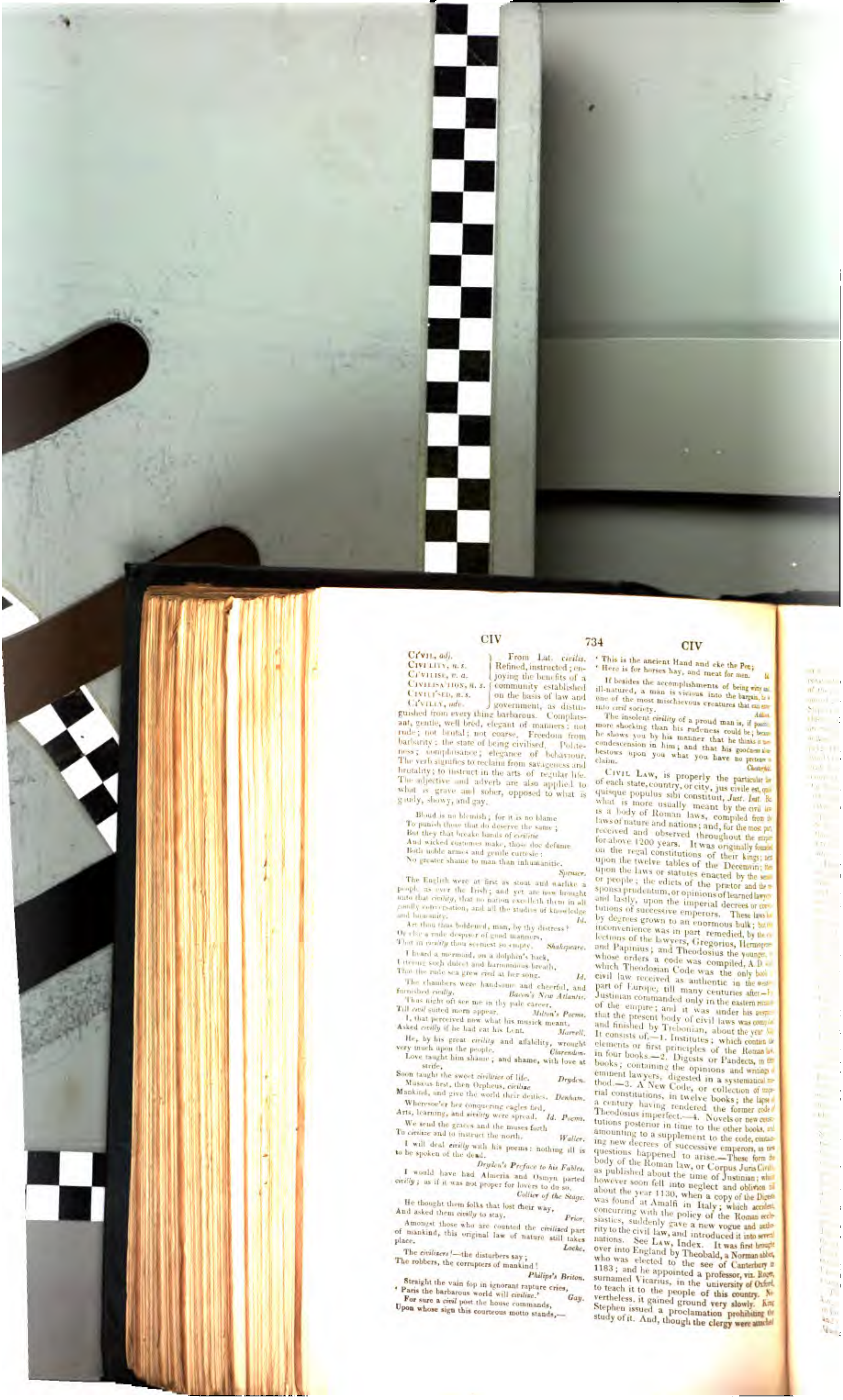
City, in a strict sense, means the houses enclosed within the walls: in a larger sense it reaches to all the suburbs. *Watts.*

Study your race, or the soil of your family will dwindle into *cits* or squires, or run up into wits or madmen. *Tatler.*

Barnard, thou art a *cit*, with all thy worth;
But Bug and D—l, their honours, and so forth.
Pope.

The *city* has always been the province for satire, and the wits of King Charles's time jested upon nothing else during his whole reign. *Addison.*

Oh! had they been of court or *city* breed,
Such delicacy were right marvellous indeed.
Beattie



Ci'vil, *adj.*
Civi'lity, *n. s.*
Ci'vilise, *v. a.*
Civilisa'tion, *n. s.*
Civili'sed, *n. s.*
Ci'villy, *adv.*

From Lat. *civilis.* Refined, instructed; enjoying the benefits of a community established on the basis of law and government, as distinguished from every thing barbarous. Complaisant, gentle, well bred, elegant of manners; not rude; not brutal; not coarse. Freedom from barbarity; the state of being civilised. Politeness; complaisance; elegance of behaviour. The verb signifies to reclaim from savageness and brutality; to instruct in the arts of regular life. The adjective and adverb are also applied to what is grave and sober, opposed to what is gaudy, showy, and gay.

Blood is no blemish; for it is no blame
To punish those that do deserve the same;
But they that breake bands of *civilitie*
And wicked customes make, those doe defame
Both noble armes and gentle curtesie:
No greater shame to man than inhumanitie.
Spenser.

The English were at first as stout and warlike a people as ever the Irish; and yet are now brought unto that *civility*, that no nation excelleth them in all goodly conversation, and all the studies of knowledge and humanity. *Id.*

Art thou thus boldened, man, by thy distress?
Or else a rude despiser of good manners,
That in *civility* thou seemest so empty. *Shakspeare.*

I heard a mermaid, on a dolphin's back,
Uttering such dulcet and harmonious breath,
That the rude sea grew *civil* at her song. *Id.*

The chambers were handsome and cheerful, and furnished *civilly.* *Bacon's New Atlantis.*

Thus night oft see me in thy pale career,
Till *civil* suited morn appear. *Milton's Poems.*

I, that perceived now what his musick meant,
Asked *civilly* if he had eat his Lent. *Marvell.*

He, by his great *civility* and affability, wrought very much upon the people. *Clarendon.*

Love taught him shame; and shame, with love at strife,
Soon taught the sweet *civilities* of life. *Dryden.*

Musæus first, then Orpheus, *civilise*
Mankind, and give the world their deities. *Denham.*

Wheresoe'er her conquering eagles fled,
Arts, learning, and *civility* were spread. *Id. Poems.*

We send the graces and the muses forth
To *civilize* and to instruct the north. *Waller.*

I will deal *civilly* with his poems: nothing ill is to be spoken of the dead.
Dryden's Preface to his Fables.

I would have had Almeria and Osmyn parted *civilly*; as if it was not proper for lovers to do so.
Collier of the Stage.

He thought them folks that lost their way,
And asked them *civilly* to stay. *Prior.*

Amongst those who are counted the *civilized* part of mankind, this original law of nature still takes place. *Locke.*

The *civilisers*!—the disturbers say;
The robbers, the corrupters of mankind!
Philips's Briton.

Straight the vain fop in ignorant rapture cries,
'Paris the barbarous world will *civilize*.' *Gay.*

For sure a *civil* post the house commands,
Upon whose sign this courteous motto stands,—
'This is the ancient Hand and eke the Pen;
'Here is for horses hay, and meat for men. *Id.*

If besides the accomplishments of being witty and ill-natured, a man is vicious into the bargain, he is one of the most mischievous creatures that can enter into *civil* society. *Addison.*

The insolent *civility* of a proud man is, if possible, more shocking than his rudeness could be; because he shows you by his manner that he thinks it a condescension in him; and that his goodness alone bestows upon you what you have no pretence to claim. *Chesterfield.*

Civil Law, is properly the particular law of each state, country, or city, jus civile est, quod quisque populus sibi constituit, *Just. Inst.* But what is more usually meant by the civil law is a body of Roman laws, compiled from the laws of nature and nations; and, for the most part, received and observed throughout the empire for above 1200 years. It was originally founded on the regal constitutions of their kings; next upon the twelve tables of the Decemvirs; then upon the laws or statutes enacted by the senate or people; the edicts of the prætor and the responsa prudentum, or opinions of learned lawyers; and lastly, upon the imperial decrees or constitutions of successive emperors. These laws had by degrees grown to an enormous bulk; but this inconvenience was in part remedied, by the collections of the lawyers, Gregorius, Hermogenes, and Papinius; and Theodosius the younger, by whose orders a code was compiled, A.D. [illegible] which Theodosian Code was the only book of civil law received as authentic in the western part of Europe, till many centuries after.—Justinian commanded only in the eastern remains of the empire; and it was under his auspices that the present body of civil laws was compiled and finished by Trebonian, about the year [illegible] It consists of,—1. Institutes; which contain the elements or first principles of the Roman law, in four books.—2. Digests or Pandects, in fifty books; containing the opinions and writings of eminent lawyers, digested in a systematical method.—3. A New Code, or collection of imperial constitutions, in twelve books; the lapse of a century having rendered the former code of Theodosius imperfect.—4. Novels or new constitutions posterior in time to the other books, and amounting to a supplement to the code, containing new decrees of successive emperors, as new questions happened to arise.—These form the body of the Roman law, or Corpus Juris Civilis, as published about the time of Justinian; which however soon fell into neglect and oblivion till about the year 1130, when a copy of the Digests was found at Amalfi in Italy; which accident, concurring with the policy of the Roman ecclesiastics, suddenly gave a new vogue and authority to the civil law, and introduced it into several nations. See Law, Index. It was first brought over into England by Theobald, a Norman abbot, who was elected to the see of Canterbury in 1183; and he appointed a professor, viz. Roger, surnamed Vicarius, in the university of Oxford, to teach it to the people of this country. Nevertheless, it gained ground very slowly. King Stephen issued a proclamation prohibiting the study of it. And, though the clergy were attached to it, the laity rather wished to preserve the old constitution. However, the zeal and influence of the clergy prevailed; and the civil law acquired great reputation from the reign of king Stephen to the reign of king Edward III. both inclusive. Many transcripts of Justinian's Institutes are to be found in the writings of our ancient authors, particularly of Bracton and Fleta; and judge Blackstone observes, that the common law would have been lost and over-run by the civil, had it not been for the incident of fixing the court of common pleas in one certain spot, and the forming the profession of the municipal law into an aggregate body. It is allowed that the civil law contains all the principles of natural equity; and that nothing can be better calculated to form good sense and sound judgment. Hence, though in several countries it has no other authority but that of reason and justice, it is every where referred to as authority.

But the civil law is not received at this day in any nation without some alterations; sometimes the feudal law is mixed with it, or general and particular customs; and often ordinances and statutes cut off a great part of it. In Turkey the basilica only are used. In Italy the canon law and customs have hitherto excluded a good part of it. In the ci-devant state of Venice, custom had almost an absolute government. In the Milanese the feudal law, and particular customs, bore sway. In Naples, and Sicily, the constitutions and laws of the Lombards are said to prevail. . In Germany the civil is esteemed to be municipal; but yet many parts of it are there grown obsolete; and others are altered, either by the canon law or a different usage. In the northern parts of Germany, the jus Saxonicum, Lubecense, or Culmense, is preferred before it. In Denmark and Sweden, it has scarcely any authority at all. In France, before the late revolution, only a part of it was received, in some places as a customary law; and, in those provinces nearest to Italy, it was received as a municipal written law. In criminal causes the civil law was more regarded in France; but the manner of trial was regulated by ordinances and edicts. In Spain and Portugal, the civil law is connected with the jus regium and custom. In Scotland, the statutes of the sederunt, part of the regiæ majestatis, and their customs, control the civil law. In England there are four species of courts in which the civil and canon law are permitted, under restriction by the common law, to be used. 1. The courts of the archbishops and bishops, and their derivative officers; usually called in our law courts Christian, or the ecclesiastical courts. 2. The military courts, or courts of chivalry. 3. The courts of admiralty. 4. The courts of the two Universities. In all, the reception of those laws in general, and the different degrees of that reception, are grounded entirely upon custom; corroborated as to the Universities, by act of parliament and their charters.

The Civil List, is a revenue awarded to the kings of Great Britain in modern times, partly in the place of their ancient hereditary income, and partly to defray certain expenses of the state. Queen Elizabeth's entire revenue did not amount to more than £600,000 a year; that of king Charles I. was £800,000; and the revenue voted for king Charles II. was £1,200,000, though complaints were made (in the first years at least) that it did not amount to so much. The revenue of the Commonwealth between the time of Charles I. and Charles II. was upwards of £1,500,000.

These revenues were expected to defray all public expenses; among which lord Clarendon, in his speech to the parliament, computed that the charge of the navy and land forces amounted annually to £800,000. The same revenue, subject to the same charges, was settled on king James II. by stat. 1 Jac. II. c. 1.; but, by the increase of trade and more frugal management, it amounted on an average to a million and a half per annum; besides other additional customs granted by parliament, stat. 1 Jac. II. cc. 3, 4, which produced an annual revenue of £400,000; out of which his fleet and army were maintained at the expense of £1,100,000. After the Revolution, when the parliament took into its hands the annual support of the forces, both maritime and military, a civil list revenue was settled on the new king and queen, amounting, with the hereditary duties, to £700,000 per annum; the same was continued to queen Anne and king George I. That of king George II. was augmented to £800,000 by stat. 1 George II. c. 2.; and that of king George III. was from time to time settled and increased by the following statutes: viz. 1 Geo. III. c. 1. £800,000; 17 Geo. III. c. 21, £100,000; and 44 Geo. III. c. 80, £60,000 more; and by 52 Geo. III. c. 6, (amended by 55 Geo. III. c. 15), £70,000 more during the king's indisposition. By the latter acts it is provided that an account of any accumulation of arrears shall from time to time be laid before Parliament. By 33 Geo. III. c. 34 (amended by 45 Geo. III. c. 76) a civil list of £145,000 is made payable to his majesty out of the revenues of Ireland. By stat 47 Geo. III. st. 2, c. 24, the king is empowered to direct the execution of any trusts to which lands vested in him by escheat, &c. or in right of the crown on the duchy of Lancaster, might have been liable, and to bestow such lands, or reward discoverers. See also stats. 48 Geo. III. c. 73; 50 Geo. III. c. 65; and 54 Geo. III. c. 70, for improving the land revenue of the crown: and 52 Geo. III. c. 148, respecting the king's privy purse.

The expenses at present defrayed by the civil list are those that in any shape relate to civil government: as the expenses of the royal household; the revenues allotted to the judges previous to the year 1758; all salaries to officers of state, and every of the king's servants; the appointments to foreign ambassadors; the maintenance of the queen and royal family; the king's private expenses, or privy purse; and other very numerous out-goings, as secret-service money, pensions, and other bounties, which sometimes have far exceeded the revenues appointed for that purpose, and application has accordingly been made to parliament to discharge the debts contracted on the civil list. No part of our state-machinery seems to require more investigation and reform.

Civil War, a war between people of the

same state, or the citizens of the same city.

Civil Year, the legal year, or annual account of time, which every government appoints to be used within its own dominions. See Astronomy and Chronology.

CIVITA di Chieti, or Teti, a city of Naples, anciently called Theati, capital of the province of Abruzzo Citra. It is the see of an archbishop, and contains four churches and nine convents, situated near the Pescara, seven miles north of Capua, and ninety-three north of Naples.

Civita di Penna, an ancient town of Naples, in Abruzzo Ulterior, and department of Pescara, with a bishop's see. It is situated near the river Salino, twenty-five miles north-east of Aquila.

Civita Vecchia, a sea-port town of Italy, in the pope's territories, with a good harbour and an arsenal. Here the pope's galleys are stationed; it was made a free port in 1741; but the air is very unwholesome. Population about 9000. It is thirty-eight miles north-west of Rome. Long. 11° 51′ E., lat. 42° 5′ N.

CIUS, in ancient geography, a river of Bithynia, which gave name to the Cianus Sinus. Hylas, the favorite boy of Hercules, is said to have been drowned in it. Also, a town of Bithynia, which was afterwards called Prusia, having been destroyed by Philip the father of Perseus, and rebuilt by Prusias king of Bithynia.

CIZE, *n. s.*, perhaps from Lat. *incisa*; shaped or cut to a certain magnitude; the quantity of any thing with regard to its external form: often written size.

> If no motion can alter bodies, that is, reduce them to some other *cize* or figure, then there is none of itself to give them the *cize* and figure which they have. *Grew's Cosmologia.*

CLACK, *n. s.*, *v. n.* & *v. a.* Goth. *klak*; Sax. clec; Fr. *claque*; Welsh *clacc*; continued noise; a mill-clapper; a human tongue, always wagging, to very little purpose besides the monotonous din of audible nonsense; to make a chinking noise; to let the tongue run. The active verb is used in another sense, as to clack wool is to cut off the sheep's mark, which makes it to weigh less, and so yield the less custom to the king.

Her *clacking* mill, driven by her flowing gall,
Could never stand, but chide, rail, bark, and bawl:
Her shield no word could find—her tongue engrossed
them all. *Fletcher's Purple Island.*

But still his tongue ran on,
And with its everlasting *clack*
Set all men's ears upon the rack. *Hudibras.*

Fancy flows in, and muse flies high;
He knows not when my *clack* will lie. *Prior.*

Says John, just at the hopper will I stand,
And mark the *clack* how justly it will sound.
Betterton.

'Tis true, your asses and your apes,
And other brutes in human shapes,
And that thing made of sound and show,
Which mortals have misnamed a beau,
(But in the language of the sky
Is called a two-legged butterfly,)
Will make your very heart-strings ache
With loud and everlasting *clack*,
And beat your auditory drum
Till you grow deaf or they grow dumb. *Beattie.*

CLACKMANNAN, a county and town of Scotland, between 56° 5′ and 56° 15′ N. lat., and 3° 35′ and 3° 55′ W. long., surrounded on all sides by Perthshire, except on the south and south-west, where it is bounded by the river Forth, which divides it from Stirlingshire. It is about seven miles broad at a medium from north to south, and where longest from east to west about nine, including fifty-two square miles, or 32,[illegible] acres. The country towards the Forth is plain and fertile, producing abundance of corn and pasture; three-fourths of the surface being cultivated, a greater proportion than almost anywhere else in Scotland. On the coast there are several excellent harbours for shipping, as well as creeks for the reception of boats employed in the fisheries. From the shore the surface rises into the Ochil mountains, the highest of which, Bencleugh, nearly 2500 feet above the level of the sea, lies in the parish of Tillycoultry. The sides of these mountains afford excellent pasture for sheep; but towards the summit the rocks appear quite bare, and broken by bold projections, with deep ravines, down which many streams wildly dashing, give a very romantic appearance to the scenery. These rocks protect the lower parts from the winds, and thus produce an agreeable temperature of climate. There are only two rivers of any consequence beside the Forth, these are the North and South Dovan, or Devon, the former running a course of twenty-six miles, and both falling into the Forth, which is navigable along the whole boundary of this county. Agriculture has been considerably improved in this county, and the first ploughing match in Scotland, in the way of competition for premiums, was instituted in the parish of Clackmannan, in 1781, by the gentlemen of the Clackmannanshire Farmer Club. In general, however, there is more attention paid to pasture than tillage; yet considerable quantities of corn are exported. The land rent is about £32,000 sterling, according to the valuation taken in 1811, at which time the estimated population was 12,010. Coal is found in abundance almost everywhere; freestone and granite are also plentiful. In the Ochils, at various times, have been wrought valuable ores of silver, lead, copper, cobalt, ironstone, and antimony; many beautiful specimens of septaria, or geodes (iron ore), are also found. Near Stirling the Abbey Craig, a mass of greenstone rock, crystallised internally, but exhibiting a rough column-like appearance externally, affords a mill-stone equal if not superior to the French burstones. Among the rubbish which is washed from the hills, pebbles, agates, and even topazes, are sometimes discovered. The inhabitants carry on a considerable foreign trade, and export coals, pig-iron, and British spirits, nearly a million gallons of which are sent to the English markets. They import grain for the distilleries, sugar, timber, iron, &c. They manufacture sail-cloth and coarse linen, girdles, camblets, and plaids for the Highland regiments; they also bleach a great quantity of fine linen, manufactured at Dumfermline. This county contains two principal towns, Clackmannan and Alloa.

Clackmannan sends a member to parliament alternately with the county of Kinross. There are four parishes, Clackmannan, Alloa, Dollar, and Tillicoultry; Cambuskenneth, in the county of Stirling, forms a part of this county, and a third of the parish of Logie is likewise included in it. There is no assessment for the poor, except in this parish, where, in 1812, the total number of paupers was 193, receiving annually £643, or nearly £3. 10*s*. each. Among the antiquities of the county may be reckoned the ruins of Castle Campbell, in a very wild country above the village of Dollar. Here John Knox found a temporary retreat. It was burned by Montrose in 1644. The tower of Alloa, erected before the year 1300, the residence of the Erskines, earls of Mar, is in good preservation. The walls are eleven feet thick, and one of the turrets is eighty-nine feet from the ground.

CLACKMANNAN, the chief town, is pleasantly situated on an eminence 190 feet above the level of the Forth, with a gradual descent on every side but the west, where it is bold and rocky. Here the old tower of Clackmannan stands, commanding a beautiful and romantic prospect of the mountains of Benmore, Benledi, and Benlomond, the town and castle of Stirling, the various windings of the Forth, the town of Alloa, &c. The great sword and helmet of king Robert Bruce, and a large two-handed sword of Sir J. Graham, (the friend of the heroic Wallace, are preserved in the tower. Clackmannan was long the seat of the chief of the Bruces, who were hereditary sheriffs of the county before the jurisdictions were abolished; the Bruces of Kennet still have their residence here. The town, however, by no means corresponds with the beauty of its situation. The principal street is broad, but many of the houses are mean; in the middle of the street stands the tolbooth and court-house, a heap of ruins. Here the sheriff sometimes holds his court, and the election for members of parliament takes place. The harbour was formerly crooked and inconvenient, but was much improved in 1772. The town contains about 5000 inhabitants, and lies thirty-three miles north by east of Glasgow. Alloa is a port of considerable commerce, with a good harbour and well-built quay, at which are cleared out annually from 900 to 1000 vessels, carrying 50,000 tons, and furnishing employ for 2500 seamen. See ALLOA.

Packets are employed between Alloa and Leith, and the late introduction of steam-boats, which pass between that and Newhaven, and various other places on the Forth, affords a convenient and speedy conveyance for passengers.

CLAD, *part. pret*. This participle, which is now referred to clothe, seems originally to have belonged to clogden, or some such word, like Dutch, *kleeden*. Clothed; invested; garbed.

He hath *clad* himself with a new garment. 1 *Kings*.

Ageynst his will, sithe it mote nedes be,
This Troilus up rose, and fast him *cled*.
Chaucer's Canterbury Tales.

So oft in feasts with costly changes *clad*,
To crammed maws a spratt new stomach brings.
Sidney.

Beyond
The flowery dale of Sibma, *clad* with vine. *Milton*.

Their prayers *clad*
With incense, where the golden altar fumed
By their great intercessor. *Id.*

Then the procurers under Progers filed,
Gentlest of men, and his lieutenant mild,
Bronkard, love's squire, through all the field arrayed,
No troop was better *clad* nor so well payed. *Marvell*.

But virtue too, as well as vice, is clad
In flesh and blood. *Waller*

To her the weeping heavens become serene;
For her the ground is *clad* in cheerful green.
Dryden.

The courtiers were all most magnificently *clad*.
Swift.

CLAGENFURT, a town and circle of Germany, capital of the duchy of Carinthia, situated on the Glan, and surrounded with a good wall. It contains a castle, lyceum, university, six churches, and three convents; is very regularly and well built, and has several good squares. It has a manufacture of cloth, which is much esteemed. The traveller is said to find here an excellent collection of busts and paintings, together with a complete and well-arranged cabinet of all the mineralogical productions of Carinthia. This town was taken by the French, after they had defeated the Austrians, in 1797, and again in 1809. Population 10,000. It is fifty miles north of Trieste, and 132 south-west of Vienna. Not far distant is the lake of Clagenfurt, amidst very picturesque scenery.

CLAGETT (William), D.D. an eminent and learned divine, born in 1646. He was preacher to the society of Gray's Inn; which employment he exercised until he died, in 1688, being then one of the king's chaplains. Bishop Burnet has ranked him among 'those worthy men, whose lives and labors contributed to rescue the church from the reproaches which the follies of others had drawn upon it.' Dr. Clagett's principal work is his Discourse concerning the Operations of the Holy Spirit. He was one of those divines who made a noble stand against the designs of James II. to introduce popery. Four volumes of his sermons were published after his death by his brother Nicholas Clagett, archdeacon of Sudbury.

CL'AIM, *v. a.* & *n. s.*
CLA'IMABLE, *adj.*
CLA'IMANT, *n. s.*
CLA'IMER, *n. s.*
} Fr. *clamer*; from Lat. *clamo*. To require: to demand, of right; not to beg or accept as favor, but to exact as due.

A demand of any thing that is in the possession of another, or at least out of his own; as *claim* by charter, *claim* by descent. *Cowell*.

Amongst the rest, with boastfull vaine pretense
Stept Braggadocchio forth, and as his thrall
Her *claymd*, by him in battell wonne long sens:
Whereto herselfe he did to witnesse call;
Who being askt, accordingly confessed all.
Spenser.

You, in the right of lady Blanch your wife,
May then make all the *claim* that Arthur did.
Shakspeare.

Poets have undoubted right to *claim*,
If not the greatest, the most lasting name.
Congreve.

If only one man hath a divine right to obedience, nobody can *claim* that obedience but he that can shew his right. *Locke*.

We must know how the first ruler, from whom any one *claims*, came by his authority, before we can know who has a right to succeed him in it. *Locke.*

Will he not, therefore, of the two evils chuse the least, by submitting to a master who hath no immediate *claim* upon him, rather than to another who hath already revived several *claims* upon him? *Swift.*

The king of Prussia lays in his *claim* for Neuf-Châtel, as he did for the principality of Orange. *Addison on Italy.*

His well-armed front against his rival aims,
And by the dint of war his mistress *claims*.
Gay's Rural Sports.

Oh! that some villager, whose early toil
Lifts the penurious morsel to his mouth,
Had *claimed* my birth! ambition had not then
Thus slept 'twixt me and heaven.
Brooke's Gustavus Vasa.

And yet, alas! the real ills of life
Claim the full vigor of a mind prepared,
Prepared for patient long laborious strife,
Its guide experience, and truth its guard.
Beattie.

CLAIRAC, a town of France, in the department of the Lot and Garonne, chief place of a canton, in the district of Tonneins, and advantageously situated in a valley on the Lot. It contains about 5000 inhabitants. They raise tobacco, corn, wine, and brandy. Clairac is one league south-east of Tonneins, and four and a half north-west of Agen.

CLAIRAUT (Alexis), a member of the French Academy of Sciences, and one of the most illustrious mathematicians in Europe. In 1726, when not thirteen years old, he presented to the academy a memoir upon four new geometrical curves of his own invention; and he supported the character of which he thus laid the foundation, by various after publications, as, Elemens de Geometrie, 1741, in 8vo.; Elemens d' Algebre, 1746, in 8vo.; Theorie de la Figure de la Terre, 1743, in 8vo.; Tables de la Lune, 1754, in 8vo. He was concerned also in the Journal des Sçavans, to which he supplied many excellent extracts; and was one of the academicians who were sent into the north to determine the figure of the earth. He died in 1756.

CLAIRFAIT (N.), count de, a celebrated Austrian general, of whose birth we have learned only that he was a Walloon. He entered early on a military life, and in the imperial service distinguished himself against the Turks. He commanded the Austrian troops against France in 1792, and in that eventful war displayed the most eminent military talents, though not accompanied with corresponding success. When the combined armies of Austria and Prussia entered France, under the duke of Brunswick, general Clairfait, with the army under his command, joined them, and they made a very rapid progress into France; but, after the taking of Longwy and Stenay, Clairfait returned into the Low Countries, where he lost the famous battle of Gemappe, owing to the superior numbers and impetuosity of the French, under the celebrated Dumourier; but though the ability of Clairfait had been eminently evinced during this contest, his military skill was still more so in his consequent retreat across the Rhine, October 1st, 1794. He was next attached to the army under the command of the prince of Cobourg, and obtained [illegible] advantages at Altenhoven, Quievrain, [illegible] and Famars. He commanded the left [illegible] the army at the battle of Nerwinde, and [illegible] the victory. He was afterwards appointed [illegible] command of the army in Flanders, oppo[illegible] Pichegru, with whom he bravely disputed [illegible] foot of ground, till the inequality of [illegible] obliged him to abandon the country. [illegible] he obtained the command of the army of Ma[illegible] and attacked the strong camp which the [illegible] had formed before that city. Having [illegible] and made a great number of prisoners, [illegible] following up the victory with ardor, when he [illegible]ceived an order to forbear. Upon this he [illegible] his resignation, and retired to Vienna, wh[illegible] was well received by the emperor. He was [illegible]wards made a counsellor of war, and [illegible] Vienna in 1798. General Clairfait was a [illegible] disciplinarian, but greatly beloved by his [illegible] and the French considered him as the ablest [illegible]ral among their opponents in the course of [illegible] war.

CLAIR-OBSCURE, *n. s.* See Clar[illegible]

CLAM, *v. a.*
Cla'mminess, *n. s.*
Cla'mmy, *adj.*
Dut. *clam*, [illegible] Sax. clam; [illegible] wet clay; Teut. [illegible] *gelim*, glue; to glue together; to clog with glutinous matter; viscosity; viscidity; [illegible]ty; ropiness; viscous; glutinous; [illegible] adhesive; ropy.

Bodies *clammy* and cleaving, have an app[illegible] ance, to follow another body, and to hold [illegible] selves. *[illegible]*

A swarm of wasps got into a honey-pot, [illegible] they cloyed and *clammed* themselves till there [illegible] getting out again. *L'Estr[illegible]*

A greasy pipkin will spoil the *clamminess* of [illegible] *[illegible]*

Neither the brain nor spirits can conserve [illegible] tion: the former is of such a *clammy* consist[illegible] it can no more retain it than a quagmire. *Glanvill's [illegible]*

A chilling sweat, a damp of jealousy,
Hangs on my brows, and *clams* upon my [illegible]
Dryd[illegible]

Joyful thou'lt see
The *clammy* surface all o'er-strown with [illegible]
Of greedy insects. *P[illegible]*

There is an unctuous *clammy* vapour that [illegible] from the stum of grapes, when they lie [illegible] gether in the vat, which puts out a light when [illegible] into it. *Addison on [illegible]*

The continuance of the fever, *clammy* sweats, [illegible]ness, and at last a total cessation of pain, are [illegible] of a gangrene and approaching death. *Arbuthnot on [illegible]*

CLA'MBER, *v. n.* Probably corrupted from climb; as climber, clamber. To climb with difficulty, as with both hands and feet. More probably from clamp. See Clamp.

The kitchen malkin pins
Her richest lockram 'bout her reechy neck,
Clambering the walls to eye him. *Shakspeare.*

When you hear the drum,
Clamber not you up to the casements then

The men there do, not without some difficulty, *clamber* up the acclivities, dragging their kine with them. *Ray.*

They were forced to *clamber* over so many rocks, and to tread upon the brink of so many precipices, that they were very often in danger of their lives. *Addison's Freeholder.*

CLAMECY, a town of France, in the department of the Nievre, at the conflux of the Beuvron and the Yonne. In one of the fauxbourgs of this town the nominal bishop of Bethlehem resided; the see having been fixed here from the expulsion of the Christians out of the Holy Land. His income was small, and his diocese confined nearly to the place of his residence. The inhabitants, who, according to the last returns, amount to 5300, carry on a considerable hard-ware manufacture. It is eighteen miles south of Auxerre.

CLA'MOUR, *n. s.* & *v. n.* } Lat. *clamor.*
CLA'MOROUS, *adj.* } Outcry; noise; turbulent roaring; exclamation continued for a length of time. Shakspeare uses the verb in an active sense; and it seems to mean, to stop from noise.

For which oppression, was swich *clamour*,
And swiche pursuite unto the king Artour,
That damned wos this knight for to be ded
By course of law, and should have lost his hed.
Chaucer. Canterbury Tales.

Clamour your tongues, and not a word more. *Shakspeare.*

Let them not come in multitudes, or in a tribunitious manner; for that is to *clamour* counsels, not to inform them. *Bacon's Essays.*

He kissed her lips
With such a *clamorous* smack, that at the parting
All the church echo'd. *Shakspeare.*

The maid
Shall weep the fury of my love decayed;
And weeping; follow me, as thou dost now,
With idle *clamour* of a broken vow. *Prior.*

A pamphlet that will settle the wavering, instruct the ignorant, and inflame the *clamorous.* *Swift.*

Here the loud Arno's boisterous *clamours* cease,
That with submissive murmurs glides in peace.
Addison.

'Tis hence you lord it o'er your servile senates.
How low the slaves will stoop to gorge their lusts
When aptly baited! Even the tongues of patriots,
Those sons of *clamours*, oft relax the nerve
Within the warmth of favour.
Brooke's Gustavus Vasa.

And now from far the mingling *clamours* rise,
Loud and more loud, rebounding through the skies.
Beattie.

Echoing far and wide
The *clamorous* horn along the cliffs above
The hollow murmur of the ocean-tide;
The hum of bees, the linnet's lay of love,
And the full choir that wakes the universal grove.
Id.

Echoed the vale with many a cheerful note,
The lowing of the herds resounding long,
The shrilling pipe, and mellow horn remote,
And social *clamours* of the festive throng. *Id.*

CLAMP, *n. s.* & *v. a.* Goth *klauf*; Dan. *klampe*; Sax. *clamm*; Fr. *clamp.* A claw, a grapple, a brace, that which holds together and supports.

When a piece of board is fitted with the grain to the end of another piece of board cross the grain, the first board is *clamped.* Thus the ends of tables are commonly *clamped* to preserve them from warping. *Moxon's Mechanical Exercises.*

CLAMP, a pile of unburnt bricks built up for burning. They are built after the same manner as arches are built in kilns, viz. with a vacuity betwixt each brick's breadth for the fire to ascend by; but with this difference, that instead of arching, they truss over, or overspan; that is, the end of one brick is laid about half way over the end of another, and so till both sides meet within half a brick's length, and then a binding brick at the top finishes the arch.

CLAMP, in ship-building, denotes a piece of timber applied to a mast or yard, to prevent the wood from bursting; and also a thick plank lying fore and aft under the beams of the first orlop, or second deck, and is the same that the rising timbers are to the deck.

CLAMP NAILS, such nails as are used to fasten on clamps in the building or repairing of ships.

CLAMPETIA, in ancient geography, a town of the Brutii, one of those which revolted from Hannibal, called Lampetia by Polybius.

CLAN, *n. s.* probably of Scottish original; *klaan*, in the Highlands, signifies children. A family; a race; a community, from the Gothic *kylla*; to procreate. In a sense of contempt it is sometimes applied to a body of persons united for some sinister purpose.

They around the flag
Of each his faction, in their several *clans*,
Swarm populous, unnumbered, *Milton.*

Milton was the poetical son of Spenser, and Mr. Waller of Fairfax; for we have our lineal descents and *clans* as well as other families. *Dryden.*

Partridge and the rest of his *clan* may hoot me for a cheat, if I fail in any single particular. *Swift.*

CLAN, in history, and particularly in that of Scotland, means a tribe of people of the same race, and often all of the same name. The nations which overran Europe were originally divided into many small tribes; and, when they came to parcel out the lands which they had conquered, it was natural for every chieftain to bestow a portion, in the first place, upon those of his own tribe or family. These all held their lands of him; and, as the safety of each individual depended on the general union, these small societies clung together, and were distinguished by some common appellation, either patronymical or local, long before the introduction of surnames or ensigns armorial. But when these became common, the descendants and relations of every chieftain assumed the same name and arms with him; other vassals were proud to imitate their example; and by degrees they were communicated to all those who held of the same superior. Thus clanships were formed; and, in a generation or two, that consanguinity, which was at first in a great measure imaginary, was believed to be real. An artificial union was converted into a natural one: men willingly followed a leader, whom they regarded both as the superior of their lands, and the chief of their blood; and served him not only with the fidelity of vassals, but the affection of friends. In the other feudal kingdoms, we may observe such unions as we have described, imperfectly formed; but in Scotland, whether they were the production of chance, or the effect of policy, or strengthened by their preserving their genealogies both genuine and fabulous, clanships were universal. Such a confederacy might be overcome; it could not be broken; and no change of manners or government has been able, in some parts of the kingdom, completely to dissolve associations which are founded upon prejudices so natural to the human mind. How formidable were nobles at the head of followers, who, counting that cause just and honorable which their chief approved, were ever ready to take the field at his command, and to sacrifice their lives in defence of his person or of his fame! Against such men a king contended with great disadvantage; and that cold service which money purchases, or authority extorts, was not an equal match for their ardor and zeal.

The foregoing observations will receive considerable confirmation from what Sir John Dalrymple remarks of the Highland clans, in his Memoirs of Great Britain. ‘The castle of the chieftain was a kind of palace to which every man of his tribe was made welcome, and where he was entertained according to his station in time of peace, and to which all flocked at the sound of war. Thus the meanest of the clan, considering himself to be as well born as the head of it, revered in his chieftain his own honor; loved in his clan his own blood; complained not of the difference of station into which fortune had thrown him, and respected himself: the chieftain in return bestowed a protection, founded equally on gratitude, and the consciousness of his own interest. Hence the Highlanders, whom more savage nations called savage, carried, in the outward expression of their manners, the politeness of courts without their vices, and, in their bosoms, the high points of honor without its follies. In countries where the surface is rugged, and the climate uncertain, there is little room for the use of the plough; and, where no coal is to be found, and few provisions can be raised, there is still less for that of the anvil and shuttle. As the Highlanders were, upon these accounts, excluded from extensive agriculture and manufacture alike, every family raised just as much grain, and made as much raiment, as sufficed for itself; and nature, whom art cannot force, destined them to the life of shepherds. Hence, they had not that excess of industry which reduces man to a machine, nor that want of it which sinks him into a rank of animals below his own. They lived in villages built in valleys and by the sides of rivers. At two seasons of the year they were busy; the one in the end of spring and beginning of summer, when they put the plough into the little land they had capable of receiving it, sowed their grain, and prepared their provision of turf for next winter's fuel; the other just before winter, when they reaped their harvest: the rest of the year was all their own, for amusement or for war. If not engaged in war, they indulged themselves in summer in the most delicious of all pleasures, to men in a cold climate and a romantic country, the enjoyment of the sun, and of the summer views of nature; never in the house during the day, even sleeping often at night in the open air, amongst the mountains and woods. They spent the winter in the chase, while the sun was up; and, in the evening, assembling round a common fire, they entertained themselves with the song, the tale, and the dance: but they were ignorant of sitting days and nights at games of skill, or of hazard, amusements which keep the body in inaction, and the mind in a state of vicious activity. The want of a good, and even of a fine ear for music, was almost unknown amongst them; because it was kept in continual practice, among the multitude from passion, but by the wiser few, because they knew that the love of music both heightened the courage and softened the tempers of their people. Their vocal music was plaintive, even to the depth of melancholy; their instrumental, either lively for brisk dances, or martial for the battle. Some of their tunes even contained the great but natural idea, of a history described in music; the joys of a marriage, the noise of a quarrel, the sounding to arms, the rage of a battle, the broken disorder of a flight,—the whole concluding with the solemn dirge and lamentation for the slain. By the loudness and animating jarring of their war instrument, the bagpipe, which played continually during the action, their spirits were exalted to a phrenzy of courage in battle. They joined the pleasures of history and poetry to those of music, and the love of classic learning to both. For, in order to cherish these sentiments in the minds of all, every considerable family had an historian who recounted, and a bard who sung, the deeds of his clan and of its chieftain: and all, even the lowest in station, were sent to school in their youth; partly because they had nothing else to do at that age, and partly because literature was thought the distinction, not the want of it the mark, of good birth. The severity of their climate, the height of their mountains, the distance of their villages from each other, their love of the chase and of war, and their desire to visit and be visited, forced them to great bodily exertions. The vastness of the objects which surrounded them, lakes, mountains, rocks, cataracts, extended and elevated their minds: for they were not in the state of men, who only know the way from one town to another. Their want of regular occupation led them, like the ancient Spartans, to contemplation, and the powers of conversation: powers which they exerted in striking out the original thoughts which nature had suggested, not in languidly repeating those which they had learned from other people. They valued themselves without undervaluing other nations. They loved to quit their own country to see and to hear, adopted easily the manners of others, and were attentive and insinuating wherever they went. When strangers came amongst them, they received them not with a ceremony which forbids a second visit, not with a coldness which causes repentance of the first, not with an embarrassment which leaves both the landlord and his guest in equal misery, but with the most pleasing of all politeness, the simplicity and cordiality of affection; proud to give that hospitality which they had not received, and to humble the persons who had thought of them with contempt, by showing how little they deserved. Having been driven from the low countries of Scotland by invasion, they, from time immemorial, thought themselves entitled to make reprisals upon the property of their invaders; but they touched not that of each other; so that in the same men there appeared, to those who did not look into the causes of things, a strange mixture of vice and of virtue. For what we term theft and rapine, they termed right and justice. But from the practice of these reprisals, they acquired the habits of being enterprising, artful, and bold. An injury done to one of a clan, was held to be an injury done to all, on account of the common relation of blood. Hence the Highlanders were in the habitual practice of war; and hence their attachment to their chieftain, and to each other, was founded upon the two most active principles of human nature, love of their friends, and resentment against their enemies. But the frequency of war tempered its ferocity. They bound up the wounds of their prisoners, while they neglected their own; and in the person of an enemy, respected and pitied the stranger. They went always completely armed: a fashion which, by accustoming them to the instruments of death, removed the fear of death itself; and which, from the danger of provocation, made the common people as polite, and as guarded in their behaviour, as the gentry of other countries. From these combined circumstances, the higher ranks and the lower ranks of the Highlanders alike joined that refinement of sentiment, which, in all other nations, is peculiar to the former, to that strength and hardiness of body, which, in other countries, is possessed only by the latter. To be modest as well as brave; to be contented with the few things which nature requires; to act and to suffer without complaining; to be as much ashamed of doing anything insolent or injurious to others, as of bearing it when done to themselves; and to die with pleasure to revenge the affronts offered to their clan or their country: these they considered their highest accomplishments. In religion every man followed, with indifference of sentiment, the mode which his chieftain had assumed. Their dress, which was the last remains of the Roman habit in Europe, was well suited to the nature of their country, and still better to the necessities of war. It consisted of a roll of light woollen, called a plaid, six yards in length, and two in breadth, wrapped loosely round the body; the upper lappet of which rested on the left shoulder, leaving the right arm at full liberty; a jacket of thick cloth fitted tightly to the body; and a loose short garment of light woollen, which went round the waist and covered the thigh. In rain they formed the plaid into folds, and laying it on the shoulders, were covered as with a roof. When they were obliged to lie abroad in the hills, in their hunting parties, or tending their cattle, or in war, the plaid served them both for bed and for covering; for, when three men slept together, they could spread three folds of cloth below, and six above them. The garters of their stockings were tied under their knee, with a view to give more freedom to the limb; and they wore no breeches, that they might climb mountains with the greater ease. The lightness and looseness of their dress, the custom they had of going always on foot, never on horseback; their love of long journeys, but above all, that patience of hunger, and every kind of hardship, which carried their bodies forward, even after their spirits were exhausted, made them exceed all other European nations in speed and perseverance of march. In encampments, they were expert at forming beds in a moment, by tying together bunches of heath, and fixing them upright in the ground; an art, which, as the beds were both soft and dry, preserved their health in the field, when other soldiers lost theirs. Their arms were a broad sword, a dagger, called a dirk, a target, a musket, and two pistols; so that they carried the long sword of the Celtes, the pugio of the Romans, the shield of the ancients, and both kinds of modern fire-arms, all together. In battle they threw away the plaid and under garment, and fought in their jackets, making thus their movements quicker, and their strokes more forcible. Their advance to battle was rapid, like the charge of dragoons: when near the enemy, they stopped a little to draw breath and discharge their muskets, which they then dropped on the ground: advancing, they fired their pistols, which they threw, almost at the same instant, against the heads of their opponents; and then rushed into their ranks with the broad sword, threatening, and shaking the sword as they ran on, so as to conquer the enemy's eye, while his body was yet unhurt. They fought not in long and regular lines, but in separate bands, like wedges condensed and firm; the army being ranged according to the clans which composed it, and each according to its families; so that there arose a competition in valor of clan with clan, of family with family, of brother with brother. To make an opening in regular troops, and to conquer, they reckoned the same thing; because in close engagements, and in broken ranks, no regular troops could withstand them. They received the bayonet in the target, which they carried on the left arm; then turning it aside, or twisting it in the target, they attacked with the broad sword, the enemy encumbered and defenceless; and, where they could not wield the broad sword, they stabbed with the dirk.' The indissolubility of these associations has been already noticed; and it may now be added, that though the abolition of the feudal system effected a greater alteration in the character of these people, by inspiring them with sentiments and views of independence, during the last century, than a thousand years before had effected, yet the sensibility of their nature, the hardiness of their constitution, their warlike disposition, and their generous hospitality to strangers, remain undiminished. And, though emancipated now from the feudal yoke, they still show a voluntary reverence to their chiefs, as well as affection to those of their own tribe and kindred: qualities which are not only very amiable and engaging in themselves, but which are connected with that character of alacrity and inviolable fidelity and resolution, which their exertions in the field have justly obtained in the world.

After the battle of Culloden, government, it is well known, felt it necessary to break up these incongruous and dangerous associations. The clans were disarmed, and an act was passed for abolishing their peculiarity of garb, as being supposed to keep up their strong party distinctions, to encourage their martial propensities, and to perpetuate too obviously the exploits of their ancestors. The heritable jurisdiction also was entirely abolished. King William's treatment of the Highlands has often been condemned as severe, but some of the oaths fixed upon these unhappy tribes by a British government, so late as 1747 and 1748, will ever be the disgrace of that period. The Highlander was at this period required to swear 'As he would answer to God at the great day of judgment,' not only that he had not in his possession gun, sword, pistol, or any other arms whatsoever, but that he never used tartan, plaid, or any part of the Highland garb;—'If I do so,' this horrible oath continued, 'may I be cursed in my undertakings, family, and property; may I never see my wife and children, father, mother, or relations; may I be killed in battle as a coward, and lie without Christian burial in a strange land, far from the graves of my forefathers and kindred.' Dr. Johnson, whose visit here in 1773, was not too late to enable him to witness some of the effects of this policy, frequently mourns over the necessity which he contends to have dictated it. He says 'Perhaps there is no example till within a century and a half, of any family, whose estate was alienated otherwise than by violence or forfeiture. Since money has been brought amongst them, they have found, like others, the art of spending more than they receive; and I saw with grief the chief of a very ancient clan, whose island was condemned by law to be sold for the satisfaction of his creditors.' Then follows a correct picture of the clan-system in its first exhibition:—

'The name of highest dignity is laird, of which there are in the extensive isle of Sky only three, Macdonald, Macleod, and Mackinnon. The laird is the original owner of the land, whose natural power must be very great, where no man lives but by agriculture; and where the produce of the land is not conveyed through the labyrinths of traffic, but passes directly from the hand that gathers it to the mouth that eats it. The laird has all those in his power that live upon his farms. Kings can, for the most part, only exalt or degrade. The laird at pleasure can feed or starve, can give bread, or withhold it. This inherent power was yet strengthened by the kindness of consanguinity, and the reverence of patriarchal authority. The laird was the father of the clan, and his tenants commonly bore his name. And to these principles of original command was added, for many ages, an exclusive right of legal jurisdiction.

'This multifarious and extensive obligation operated with force scarcely credible. Every duty, moral or political, was absorbed in affection and adherence to the chief. Not many years have passed since the clans knew no law but the laird's will. He told them to whom they should be friends or enemies, what king they should obey, and what religion they should profess. When the Scots first rose in arms against the succession of the house of Hanover, Lovat, the chief of the Frasers, was in exile for a rape. The Frasers were very numerous, and very zealous against the government. A pardon was sent to Lovat. He came to the English camp, and the clan immediately deserted to him.

'Next in dignity to the laird is the tacksman; a large taker, or lease-holder of land, of which he keeps part as a domain in his own hand, and lets part to under-tenants. The tacksman is necessarily a man capable of securing to the laird the whole rent, and is commonly a collateral relation. These tacks, or subordinate possessions, were long considered as hereditary, and the occupant was distinguished by the name of the place at which he resided. He held a middle station, by which the highest and the lowest orders were connected. He paid rent and reverence to the laird, and received them from the tenants. This tenure still subsists, with its original operation, but not with the primitive stability. Since the islanders, no longer content to live, have learned the desire of growing rich, an ancient dependent is in danger of giving way to a higher bidder, at the expense of domestic dignity and hereditary power.

'The only gentlemen in the islands are the lairds, the tacksmen, and the ministers, who frequently improve their livings by becoming farmers. If the tacksmen be banished, who will be left to impart knowledge, or impress civility? The laird must always be at a distance from the greater part of his lands; and, if he resides at all upon them, must drag his days in solitude, having no longer either a friend or a companion; he will therefore depart to some more comfortable residence, and leave the tenants to the wisdom and mercy of a factor.'

The reasoning of this great sage on the disarming act is equal to that of any part of his writings:—

'To disarm part of the Highlands, could give no reasonable occasion of complaint. Every government must be allowed the power of taking away the weapon that is lifted against it. But the loyal clans murmured, with some appearance of justice, that, after having defended the king, they were forbidden for the future to defend themselves; and that the sword should be forfeited, which had been legally employed. Their case is undoubtedly hard, but in political regulations good cannot be complete, it can only be predominant.

'Whether by disarming a people thus broken into several tribes, and thus remote from the seat of power, more good than evil has been produced, may deserve enquiry. The supreme power in every community has the right of debarring every individual, and every subordinate society, from self-defence, only because the supreme power is able to defend them; and therefore where the governor cannot act, he must trust the subject to act for himself. These islands might be wasted with fire and sword before their sovereign would know their distress. A gang of robbers, such as has been lately found confederating themselves in the Highlands, might lay a wide region under contribution. The crew of a petty privateer might land on the largest and most wealthy of the islands, and riot without control in cruelty and waste. It was observed by one of the chiefs of Sky that fifty armed men might, without resistance, ravage the country. Laws that place the subject in such a state, contravene the first principles of the compact of authority: they exact obedience, and yield no protection.'—*Journey to the Western Islands.*

CLA'NCULAR, *adj.* Lat. *clancularius.* Clandestine; secret; private; concealed; obscure; hidden.

Let us withdraw all supplies from our lusts, and not by any secret reserved affection give them *clancular* aids to maintain their rebellion.
Decay of Piety.

CLANDE'STINE, *adj.* } Lat. *clandestinus.*
CLANDE'STINELY, *adv.* } Secret; hidden; private; in an ill sense.

Tho' nitrous tempests, and *clandestine* death,
Filled the deep caves and numerous vaults beneath.
Blackmore.

CLANG, *v. a.* & *n. s.* } Lat. *clango.* To
CLA'NGOUR, *n. s.* } strike together with a
CLA'NGOUS, *adj.* } noise; to clatter; to make a loud, sharp, shrill noise.

Have I not in a pitched battle heard
Loud 'larums, neighing steeds, and trumpets' *clang.*
Shakspeare.

We do not observe the cranes, and birds of long necks, have any musical, but harsh and *clangous,* throats.
Browne.

CLANK, *n. s.* from *clang.* A loud, shrill, sharp noise, made by the collision of hard and sonorous bodies.

They were joined by the melodious *clank* of marrowbone and cleaver.
Spectator.

One thought alone he could not, dared not meet.
'Oh, how these tidings will Medora greet!'
Then, only then, his *clanking* chains he raised,
And strained with rage the chain on which he gazed.
Byron.

CLAP, *n. s.*, *v. a.* & *v. n.* } Isl. *klapp*; Dan.
CLA'PPER, *n. s.* } *klap*; Swed. *klapp*;
CLA'PPING, *part.* } Sax. *clapp*; Bel. *klap*; Teut. *klapp.* A sudden motion; a blow or sound of collision; the noise of thunder. Applied not only to noise thus produced, but to hasty unexpected or sudden action, where one thing is joined to another to effect the purpose intended. To do any thing unexpectedly, to enter upon it with alacrity and briskness. The manner of expressing applause in popular assemblies, by clapping the hands. Clapper is the instrument that makes a noise.

There shall be horrible *claps* of thunder, and flashes of lightning, voices and earthquakes.
Hakewill on Providence.

He hath a heart as sound as a bell, and his tongue is the *clapper*; for what his heart thinks, his tongue speaks.
Shakspeare.

All the best men are ours; for 'tis ill hap
If they hold, when their ladies bid 'em *clap.* *Id.*

CLAP, Goth. *klaup*; Teut. *geluppe, gelauf*; Belg. *geloop*, a running; Teut. *gelippe*, venom; infection; another name for the disease called gonorrhœa, not strictly venereal, yet derived in the same manner; a gleet; a dripping derived from contagion.

CLAP, in medicine, the first stage of the venereal disease. See GONORRHŒA.

CLAP-NET, in birding, a sort of net contrived for the taking of larks with the looking-glass by the method called daring or doring. The nets are spread over an even piece of ground, and the larks are invited to the place by other larks fastened down, and by a looking-glass composed of five pieces, and fixed in a frame, so that it is turned round very swiftly backwards and forwards, by a cord pulled by a person at a considerable distance behind a hedge. See DORING.

To CLA'PPERCLAW, *v. a.* from clap and claw. To tongue-beat; to scold.

CLAPPERTON (captain Hugh), the African traveller, was born in Annan, Dumfrieshire, in 1788. After some elementary instruction in practical mathematics, he was bound apprentice, at the age of thirteen, to the owner of a vessel trading between Liverpool and North America, in which he made several voyages. He was then pressed into his Britannic majesty's service, was soon after made a midshipman, served on the American lakes in 1815, and, in 1816, received the commission of lieutenant. Having retired to Scotland, he became acquainted with doctor Oudney, who was about to embark for Africa, and requested permission to accompany him. Lieutenant (afterwards colonel) Denham having volunteered his services, and it being intended that researches should be made, to the east and west, from Bornou, where doctor Oudney was to reside as British consul, his name was added to the expedition by lord Bathurst. In the Recent Discoveries in Africa, made in 1823 and 1824, by major Denham, captain Clapperton, and doctor Oudney (London, 1826), we have accounts of an excursion from Mourzouk to Ghraat, a town of the Tuarics, by doctor Oudney; of a journey across the desert to Bornou, of various expeditions to the southward and eastward, by major Denham; and of an excursion through Soudan to the capital of the Fellatahs, by captain Clapperton. The expedition set out from Mourzouk, Nov. 29, 1822, and arrived at lake Tchad, in the kingdom of Bornou, Feb. 4, after a journey of 800 miles. Six days after they entered the capital Kouka, Clapperton, in company with doctor Oudney, who died on the way, set out on an expedition to Soccatoo, the capital of Houssa, more than 700 miles east of Kouka, which he reached in ninety days. He was not permitted to pursue his journey to the west, and returned to Kouka, and thence to England in 1825. The information which the travellers collected, in regard to the habits and commerce of the people of Central Africa, was important, as showing the existence in that quarter of a large population of a peaceable disposition, and possessed of a considerable civilization. The geographical information collected was not without its value, although it left undecided the disputed questions of the course and termination of the Niger. They proceeded south from Tripoli (lat. 32° 30'), to Musfeia (lat. 9° 10'), being 1400 miles in difference of latitude, and from Zangalia, on the east of lake Tchad (long. 17° E.), to Soccatoo (long. 6° E.), making a difference of longitude of 660 miles. They thus determined the position of the kingdoms of Mandara, Bornou, and Houssa, their extent, and the position of their principal cities. On his return to England, lieutenant Clapperton received the rank of captain, and was immediately engaged, by lord Bathurst, for a second expedition, to start from the Bight of Benin. Leaving Badagry, Dec. 7, 1825, he pursued a north-easterly direction, with the intention of reaching Soccatoo and Bornou. Two of his companions, captain Pearce and doctor Morrison, perished a short time after leaving the coast, and Clapperton pursued his way, accompanied by his faithful companion Lander. At Katunga, he was within thirty miles of the Quorra or Niger, but was not permitted to visit it. Continuing his journey north, he reached Kano, and then proceeded westward to Soccatoo, the residence of his old friend Bello. Bello refused to allow him to proceed to Bornou, and detained him a long time in his capital. This conduct appears to have arisen from the war then existing between Bello and the sheik of Bornou, and to the intrigues of the pacha of Tripoli, who had insinuated that the English meditated the conquest of Africa, as they had already conquered India. This disappointment preyed upon Clapperton's mind, and he died, April 13, 1827, at Chungary, a village four miles from Soccatoo, of a dysentery. (See *Journal of a Second Expedition from Kano to the Sea-coast, partly by a more eastern Route*, London, 1829.) Clapperton was the first European who traversed the whole of Central Africa, from the Bight of Benin to the Mediterranean. We have thus a continuous line from Tripoli to Badagry, which is of great importance from the assistance which it affords to the researches of others. Clapperton was a man without education, but intelligent and impartial; of a robust frame and a happy temperament. He was capable of enduring great hardships. His knowledge of the habits and prejudices of the Central Africans, his frank, bold, and cheerful manners, would have rendered him peculiarly useful in promoting the designs of the British government in that quarter.

They are *clapperclawing* one another, I'll look on.
Shakspeare.

They have always been at daggers-drawing,
And one another *clapperclawing*. *Hudibras.*

CLARAMONT POWDER, a kind of earth called terra de Baira, from the place where it is found; it is famous at Venice for its efficacy in stopping hemorrhages of all kinds, and in curing malignant fevers.

CLARE, a county of Ireland, in the province of Munster, bounded on the north by Galway, from the west part of which it is separated by the bay of that name, on the east and south by the Shannon, which divides it from the counties of Tipperary and Limerick, and on the west by the Atlantic Ocean. It forms a peninsula, being surrounded by the Ocean and the Shannon on all sides except part of the north, where it joins the county of Galway. Its shape is nearly triangular, the extreme point of which is Cape Lean, or Loup Head, on the south-west; extending about sixty-five miles in length from east to west, and forty-two in breadth from north to south, and containing an area of about 1200 square miles, probably occupied by nearly 120,000 inhabitants. A large proportion of this county consists of mountains, bogs, and moors; the soil is light, but the valleys are extremely fertile. In the mountainous parts the herbage is sweet, and remarkably good for the feeding of sheep. As in most other parts of Ireland, especially near the coast, the climate is moist, but not unfavorable to health and long life; fevers, which are sometimes very prevalent, mostly originating in the dampness of the houses, and want of cleanliness.

The Shannon is the only river of any magnitude, which, flowing between the counties of Sligo and Limerick, almost divides the kingdom and falls into the sea between Loup and Kerry Heads, being for some distance above its mouth about five miles in breadth, and navigable for vessels of 400 tons burden up to the quay of Limerick. The Fergus is a beautiful stream, which rising within the county, connected with a number of lakes, and passing through the Ennis, falls into the Shannon, after forming many picturesque little islands, about thirty miles from the ocean: vessels of 200 tons can navigate it for about eight miles, and after heavy rains it often overflows its banks to a considerable extent. A multitude of small lakes are found in the interior, and in many places water, either forced under ground or flowing down from the higher parts of the country, accumulates in large bodies, until the summer, when it evaporates and a rich herbage springs up, furnishing support in the dry season for vast herds of cattle and a multitude of sheep.

This county possesses a large extent of coast, indented with numerous bays, the principal of which, except Galway Bay and that formed by the mouth of the Shannon, is the Bay of Liscanor, about half way between these two points. It has also a cluster of islands called Arran, the nearest of which is about five miles from the coast. Rich and inexhaustible mines of coal are found here, but they are not worked, which is the case also with regard to the ironstone, of which there are clearly indications; lead is also discovered in several parts, and limestone abounds. Agriculture has made but little progress in this country; corn and potatoes are almost the only objects of attention with the farmers; turnips and other green crops being much neglected. The crops of corn frequently follow each other year after year till the soil is exhausted, and if manure, such as sea-weed and sand, cannot be obtained, it lies unproductive for years. The pasturage in the low country is rich and equal to the fattening of the largest cattle; there is a tract of land extending for twenty miles, from Paradise to Limerick, including about 20,000 acres of rich dark colored soil, which, though in some parts it is much neglected, is so productive that it was let at £5 per acre Irish, equal to £3. 2s. an English acre, and even more when designed for meadow; in many places it is known to produce twice as much hay as any land in Great Britain.

Clare was formerly celebrated for orchards and cyder from the cockagee apple; but of late little of it has been made, though it is still deemed excellent in quality. The inhabitants breed a great number of mules; the poorer sort use asses; but horses are of poor quality here. Coarse woollens or friezes, worsted stockings, a little broad cloth, a few blankets and serges, form the products of the woollen manufacture; there are three small bleachfields, and coarse hats are manufactured, and dyed with alder mixed with a little logwood. The fishery on the coast is not extensive, though it might be if properly attended to. The boats generally used are such as we read of in very remote periods, being constructed of wicker-work, and covered with hides; they frequently stop a hole, if an accident happens at sea, with their wigs or any article of their dress, and sometimes with their foot, and remain with the greatest apathy, exposed to the violent surf that dashes on this shore. Oysters, crabs, and lobsters, are very abundant; eels are plentiful in almost every small stream, and the Shannon salmon fishery is very valuable.

The great body of the people of this country live in houses built of stone, without cement; in some parts they are made of sods or turf, thatched with heath or fern, mostly without chimneys, as they think the smoke keeps them warm. Their beds are of hay or straw, on the damp and dirty ground, and the pig and the dog are tenants of the same chamber. Potatoes form their chief diet, sometimes they have a little milk and vegetables, and occasionally fish. The men are generally clad in frieze, and the women in red flannel, both made by the family; but dimity and cotton are used by the latter on going to market or to chapel; the men never, and the women almost never, wear shoes. A common laborer earns from eightpence to tenpence a day. There are many schools, and in summer great numbers attend them; but they are generally ill managed.

This county was formerly called Thomond, or North Munster; the origin of its present name is not ascertained. Ennis is the chief town, and the only one of importance, containing about 90,000 inhabitants; it sends one member to the imperial parliament, and the county two. Clare is part of the united diocese of Killaloe and Kilfenora, having seventy-nine parishes and eighteen resident clergymen; there are, however, very few Protestants, the Catholics forming the far greater part of the population. The Irish is the language of the country people, but the English is generally understood, and, from being used in the schools, is likely soon to become universal. Not less than 118 castles, and many Danish entrenchments called cromlechs, made of earth or stone, are found in the county. At the island of Scattery, in the mouth of the Shannon, there is a tower 150 feet high, the ruins of several churches and a castle, and a monastery said to have been founded by St. Patrick more than 1200 years ago.

Clare, an island of Ireland, on the south-west coast of Cork, about three miles long, and one wide. On a rock in the sea, and off the north-west point, stands a ruined castle, to the east of which is the cove of Tra Kieran, or St. Kieran's Strand, where a pillar of stone is found with a rude cross, the supposed work of that saint, and is held in great veneration, and much resorted to on the fifth of March, St. Kieran's festival. The island is subject to frequent predatory expeditions. Long. 9° 23′ W., lat. 51° 21′ N. Also an island of Ireland, near the coast of Mayo, about four miles long, and one and a half wide Long. 9° 49′ W., lat. 53° 49′ N.

Clare, a market town in the county of Suffolk, situated on the river Stour, with the ruins of a castle and a monastery, founded by Richard St. Clair, earl of Gloucester, in 1248. There is a weekly market on Tuesday. It is fourteen miles south of Bury St. Edmunds, and fifty-five N.N E. of London.

Clare (St.), Lake, a lake of the United States, about half way between Lake Huron and Lake Erie, and is about ninety miles in circumference. It receives the water of the three great lakes Superior, Michigan, and Huron, and discharges them through the river Detroit into Lake Erie. This lake is of a circular form, and navigable for large vessels, except a bar of sand towards the middle, which prevents loaded vessels from passing. The cargoes of such as are freighted must be taken out, and carried across the bar in boats, and re-shipped.

Clare, (St.) Nuns of, were founded in Assisa, in Italy, about 1212. They observed the rule of St. Francis, and wore habits of the same color with those of the Franciscan friars, and hence were called Minoresses; and their house, without Aldgate, the Minories, where they were settled when first brought over into England about A.D. 1293. This order comprehends not only those nuns who follow the rule of St. Francis, according to the strict letter, without mitigation, but those likewise who follow the same rule mitigated by several popes. After Ferdinand Cortez had conquered Mexico for the king of Spain, Isabella, of Portugal, wife of the emperor Charles V., sent thither some nuns of the order of St. Clara, who made several settlements there.

CLAREMONT, a township of America, in Cheshire county and State of New Hampshire; situated on the east side of Connecticut river, opposite to Ascutney Mountain in Vermont, and on the north side of Sugar river; it is twenty-four miles south of Dartmouth College, and 121 south-west by west of Portsmouth. It was incorporated in 1764, and contained 1889 inhabitants.

CLARENCIEUX, the second king at arms, so named from the duke of Clarence, to whom he first belonged: for Lionel, third son to Edward III., having by his wife the honor of Clare in the county of Thomond, was afterwards declared duke of Clarence, which dukedom afterwards escheating to Edward IV., he made this earl king at arms. His office is to marshal and dispose of the funerals of all the lower nobility baronets, knights, esquires, on the south side of the Trent; whence he is sometimes called sur roy or south roy, in contradistinction to norroy.

CLARENDON, a county of South Carolina, in the most southern part of Camden district. It is bounded on the east by Georgetown district, on the west by Orangeburg, on the south by Charleston, and on the north by Salem county. It is thirty miles long, and thirty broad. A court is held in it quarterly.

Clarendon, a township of the United States, in Rutland county, Vermont, on the Otter creek. In the west part of the town is a curious cave, the mouth of which is not more than two feet and a half in diameter, but at a depth of thirty-one feet and a half opens into a spacious room, twenty feet long twelve and a half wide, and eighteen or twenty feet high. The floor, sides, and roof, of this room are of solid rock, very rough and uneven, and the water is continually dropping through the top, forming stalactites of various forms. Population of the town about 2000.

Clarendon, a village three miles east of Salisbury, where Henry II. summoned a council of the barons and prelates in 1164, who enacted the laws called the Constitutions of Clarendon; and here were two palaces built by king John.

Clarendon, Constitutions of, certain constitutions made in the reign of Henry II., A.D. 1164, in a parliament held at Clarendon; whereby the king checked the power of the pope and his clergy, and greatly narrowed the total exemption they claimed from secular jurisdiction. See England, History of.

CLARENS, or Chatillard, a village of Switzerland, in the Pays de Vaud, celebrated as the principal scene of Rousseau's Eloise. It is delightfully situated, not far from Vevay, on an eminence, whose gentle declivity slopes gradually towards the lake of Geneva. It commands a view of that majestic body of water, its fertile borders, and the bold rocks and Alps of Savoy. The adjacent scenery consists of vineyards, fields of corn and pasture, and rich groves of oak, ash, and Spanish chestnut trees.

Clare-obscure, *n. s.*, from Lat. *clarus*, bright, and *obscurus*. Light and shade in painting.

> As masters in the *clare-obscure*
> With various light your eyes allure;
> A flaming yellow here they spread,
> Draw off in blue, or change in red;
> Yet from these colours, oddly mixed,
> Your sight upon the whole is fixed. *Prior.*

Cla'ret, *n. s.*, Fr. *clairet*; Goth. *klar*, signified wine, and *riod*, red. French wine of a clear pale red color.

> Red and white wine are in a trice confounded into *claret*. *Boyle.*
>
> The *claret* smooth, red as the lips we press
> In sparkling fancy while we drain the bowl. *Thomson.*
>
> The credulous hope of mutual minds is o'er,
> The copious use of *claret* is forbid too.
> So for a good old-gentlemanly vice
> I think I must take up with avarice. *Byron.*

CLA'RICORD, *n. s.* from *clarus*, and Lat. *chorda*. A musical instrument in form of a spinette, but more ancient. It has forty-nine or fifty keys, and seventy strings.

CLARIFICATION. The substances usually employed for clarifying liquors, are whites of eggs, blood, and isinglass. The two first are used for such liquors as are clarified whilst boiling hot; the last for those which are clarified in the cold, such as wines, &c. The whites of eggs are beat up into a froth, and mixed with the liquor, upon which they unite with, and entangle, the impure matters that floated in it; and presently growing hard by the heat, carry them up to the surface in form of a scum no longer dissoluble in the liquid. Blood operates in the same manner, and is chiefly used in purifying the brine from which salt is made. Great quantities of isinglass are used for fining turbid wines. For this purpose some throw an entire piece, about a quarter of an ounce, into a wine cask; by degrees the glue dissolves, and forms a skin upon the surface, which at length subsiding, carries down with it the feculent matter which floated on the wine. Others previously dissolve the isinglass, and, having boiled it to a slimy consistence, mix it with the liquor, roll the cask strongly about, and then suffer it to stand to settle. Neumann questions the wholesomeness of wines thus purified; and assures us that he himself, after drinking only a few ounces of sack thus clarified, but not settled quite fine, was seized with sickness and vomiting, followed by such a vertigo, that he could not stand upright for a minute together. The giddiness continued with a nausea and want of appetite for several days.

CLA'RIFY, *v. a.* & *n.* } Fr. *clarifier*. To
Clarifica'tion, *n. s.* } purify or clear any liquor; to separate from feculencies or impurities. To brighten; to illuminate. This sense is rare. To clear up; to grow bright.

> The apothecarries *clarify* their syrups by whites of eggs, beaten with the juices which they would clarify, which whites of eggs, gather all the dregs and grosser parts of the juice to them; and after, the syrup being set on the fire, the whites of eggs themselves harden, and are taken forth. *Bacon.*
>
> Whosoever hath his mind fraught with many thoughts, his wits and understanding do clarify and break up in the discoursing with another; he marshelleth his thoughts more orderly, he seeth how they look when they are turned into words. *Bacon's Essays.*
>
> Liquors are, many of them, at the first, thick and troubled; as muste, and wort: to know the means of accelerating *clarification*, we must know the causes of *clarification*. *Bacon.*

CLARIGATIO, in Roman antiquity, a ceremony that always preceded a formal declaration of war. It was thus performed: first four heralds crowned with vervain, were sent to demand satisfaction for the injuries done the Roman state. These heralds taking the gods to witness that their demands were just, one of them, with a clear voice, demanded restitution within a limited time, commonly thirty-three days; which being expired without restitution made, then the pater patratus, or prince of the heralds, proceeded to the enemies' frontiers, and declared war.

CLARII **Apollinis Nanum**, a temple and grove of Apollo, situated between Colophon and Lebedos, in Ionia; called Claros by Thucydides and Ovid.

CLA'RION, *n. s.* Span. *clarin*; from Lat. *clarus*, loud. A trumpet; a wind instrument of war.

And after to his palace he them brings,
With shaums, and trumpets, and with *clarions* sweet;
And all the way the joyous people sings. *Spenser.*

Then straight commands, that at the warlike sound
Of trumpets loud, and *clarions*, be upreared
The mighty standard. *Milton's Paradise Lost.*

Let fuller notes the applauding world amaze,
And the loud *clarion* labour in your praise. *Pope.*

The breezy call of incense breathing morn,
The swallow twittering from the straw-built shed,
The cock's shrill *clarion*, or the echoing horn,
No more shall rouse them from their lowly bed.
Gray.

No note the *clarion* of renown can breathe,
To alarm the long night of the lonely grave,
Or check the headlong haste of time's o'erwhelming
wave. *Beattie.*

CLARION has its tube narrower, and its tone acuter and shriller than that of the common trumpet. It is said that the clarion, now used among the Moors, and Portuguese, who borrowed it from the Moors, served anciently for a treble to several trumpets, which sounded tenor and bass.

CLARISSES, an order of nuns so called from their founder St. Clara or St. Clare. See CLARE, ST.

CLA'RITY, *n. s.* Fr. *clarté;* Lat. *claritas.* Brightness; splendor.

A light by abundant *clarity* invisible; an understanding which itself can only comprehend.
Sir Walter Raleigh.

Man was not only deceivable in his integrity, but the angels of light in all their *clarity*.
Browne's Vulgar Errours.

CLARK (John), a useful critic and commentator of the last century, was the master of a grammar-school at Hull in Yorkshire, where he died May 1734. His publications are: An Essay on the Education of Youth in Grammar-Schools; An Essay on Study, to which is subjoined an arranged catalogue of books; the Foundation of Morality considered; On Moral Religion; An Examination of Middleton's Answer to Christianity as old as the Creation; An Introduction to making Latin; and editions of several Latin authors with Translations.

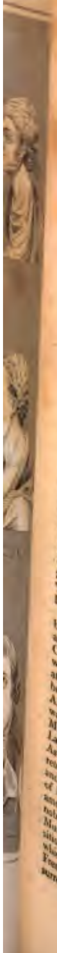
CLARKE (Samuel), D. D. a preacher and writer of considerable note in the reign of Charles II. was, during the inter-regnum, and at the time of the ejection, minister of St. Bennet Fink, in London. In November, 1660, he, in the name of the presbyterian ministers, presented an address of thanks to the king for his declaration of liberty of conscience. He was one of the commissioners of the Savoy, and behaved on that occasion with great prudence and moderation. He attended the church as a hearer and communicant; and was much esteemed by all that knew him for his probity and industry. The most valuable of his numerous works are said to be his Lives of the Puritan Divines and other persons of note, twenty-two of which are printed in his Martyrology; the rest are in his Lives of sundry Eminent Persons in this latter Age, folio, and in his Marrow of Ecclesiastical History, in folio and 4to. He died in 1680.

CLARKE (Samuel), D.D., a very celebrated English divine, was the son of Edward Clarke, Esq., alderman and M.P. of Norwich. He was born at Norwich, October 11th, 1675, and instructed in classical learning at the free school of that town. In 1691 he removed to Caius College, Cambridge, where his abilities soon began to display themselves. Though the Cartesian was at that time the established philosophy of the University, Clarke quickly made himself master of the new system of Newton; and, in order to his first degree of arts, performed a public exercise in the schools upon a question taken from it. He contributed much to the establishment of the Newtonian philosophy by an excellent translation of Rohault's Physics, with notes, which he finished before he was twenty-two years of age. This work was first printed in 1697, 8vo. There were four successive editions of it, in every one of which improvements were made, especially in the last, in 1718, which was translated by Dr. John Clarke, dean of Sarum, the author's brother, and published in two volumes 8vo. He afterwards turned his thoughts to divinity, and studied the Old Testament in Hebrew, the New in Greek, and the primitive Christian writers. Having taken orders, he became chaplain to bishop Moore, who was ever after his friend and patron. In 1699 he published Three Practical Essays on Baptism, Confirmation, and Repentance, and Some Reflections on that part of a Book called Amyntor, or a Defence of Milton's Life, which relates to the Writings of the Primitive Fathers, and the Canon of the New Testament. In 1701 he published A Paraphrase upon the Gospel of St. Matthew; which was followed, in 1702, by the Paraphrases upon the Gospels of St. Mark and St. Luke, and soon after by a third volume, upon St. John. They wère afterwards printed together in two volumes 8vo.; and have since passed through several editions. Bishop Moore now appointed him to the rectory of Drayton, near Norwich, and procured for him a parish in that city. In 1704 he was appointed to preach Boyle's lecture, and the subject he chose was, The Being and Attributes of God. In this he gave such high satisfaction, that he was appointed to the same lecture the next year; when he chose for his subject, The Evidences of Natural and Revealed Religion. These sermons were first printed in two distinct volumes, the former in 1705, the latter in 1706. They have since been united in one volume, under the general title of A Discourse concerning the Being and Attributes of God, the Obligations of Natural Religion, and the Truth and Certainty of the Christian Revelation, in answer to Hobbes, Spinoza, the author of the Oracles of Reason, and other Deniers of Natural and Revealed Religion. Clarke having endeavoured, in the first part of this work, to show that the being of a God may be demonstrated by arguments, à priori, incurred the censure of Pope in the Dunciad. But the merit of this work is undoubtedly great. The defence, in particular, of the sacred original and authority of Christianity, is admirably conducted. In 1706 he published A Letter to Mr. Dodwell; wherein all the arguments in his epistolary discourse against the immortality of the soul are particularly answered. Clarke's letter to Dodwell was soon followed by four defences of it in four several letters to him, containing Remarks on a pretended Demonstra-

tion of the Immateriality and Natural Immortality of the Soul, &c. They were afterwards all printed together, and the Answer to Toland's Amyntor added to them. In the midst of all these labors he found time to show his regard to mathematical and physical science; and his capacity for these studies was not a little improved by the friendship of Sir Isaac Newton, at whose request he translated his Optics into Latin, in 1706. Sir Isaac was so highly pleased with this version, that he presented him with the sum of £500. This year also, bishop Moore, who had long formed a design of fixing him more conspicuously, procured for him the rectory of St. Bennet's, London; and soon after carried him to court, and recommended him to the favor of queen Anne. She appointed him one of her chaplains in ordinary, and presented him to the rectory of St. James's, Westminster, in 1709. Upon his advancement to this station he took the degree of D.D. when the public exercise which he performed for it at Cambridge was much admired. The questions he maintained were: 1. Nullum fidei Christianæ dogma, in sacris Scripturis traditum, est rectæ rationi dissentaneum, i. e. No article of the Christian faith, delivered in the Holy Scriptures, is disagreeable to right reason. 2. Sine actionum humanarum libertate nulla potest esse religio; that is, Without the liberty of human actions there can be no religion. The same year he revised and corrected Whiston's translation of the Apostolical Constitutions into English. In 1712 he published a beautiful edition of Cæsar's Commentaries, adorned with elegant sculptures. It was printed in folio; and afterwards, in 1720, 8vo. It was dedicated to the duke of Marlborough. In the annotations he selected the best and most judicious in former editions, interspersed with corrections of his own. The same year, 1712, Dr. Clarke published his celebrated book entitled, The Scripture Doctrine of the Trinity, &c. divided into three parts. The first is a collection and explication, on the Arian hypothesis, of all the texts in the New Testament, relating to the doctrine of the Trinity; in the second the doctrine is set forth at large, and explained in particular and distinct propositions; and in the third, the principal passages of the liturgy of the church of England, relating to the doctrine of the Trinity, are considered. This work naturally made its author obnoxious to the ecclesiastical powers, and his book was complained of by the Lower House of Convocation. The doctor drew up a preface, and afterwards gave in several explanations, which seemed to satisfy the Upper House; at least the affair was not brought to any issue, the members appearing desirous to prevent dissentions. But shortly afterwards his alteration of the doxology in the singing psalms at St. James's excited still more animadversion. The bishop of London prohibited the use of the altered version in his diocese. In 1715 and 1716 he had a dispute with the celebrated Leibnitz, relating to the principles of natural philosophy and religion; and a collection of the papers which passed between them was published in 1717. About this time, he was presented by lord Lechmere, the chancellor of the duchy of Lancaster, to the mastership of Wigston's hospital in Leicester. In 1724 he published seventeen much admired sermons. In 1727, upon the death of Sir Isaac Newton, he was offered by the court the place of master of the mint, worth from £1200 to £1500 a year. But this, being a secular preferment, he absolutely refused. In 1728 was published, a Letter from Dr. Clarke to Mr. Benjamin Hoadly, F.R.S. occasioned by the controversy, relating to the proportion of Velocity and Force in Bodies in motion; and printed in the Philosophical Transactions, No. 401. In 1729 appeared the first twelve books of Homer's Iliad, in 4to. The Latin version is almost entirely new; and annotations are added to it. The year of this publication was the last of this great man's life. Though not robust, he had always enjoyed a firm state of health, without any indisposition that confined him, except the small pox in his youth; till, on Sunday, May 11th, 1729, going out in the morning to preach before the judges at Serjeant's Inn, he was seized with a pain in his side, which quickly became so violent, that he was obliged to be carried home. He went to bed, and thought himself so much better in the afternoon, that he would not suffer himself to be blooded. But the pain returning violently about two the next morning, he lingered until Saturday, the seventeenth, when he died, in his fifty-fourth year. Soon after were published, from his original MSS. by his brother, Dr. John Clarke, An Exposition of the Church Catechism, and ten volumes of sermons, in 8vo. Few discourses are more judicious or equally instructive. Three years after the doctor's death also appeared in 4to. the Last Twelve Books of the Iliad. Dr. Clarke married Catharine, the daughter of the Rev. Mr. Lockwood, rector of Little Missingham, in Norfolk, with whom he lived happy till his death; and by whom he had seven children. His widow received a pension of £100 per annum from queen Caroline. As a critic, particularly upon Homer, as a classical scholar, and an acute reasoner, Dr. Clarke's name will be long revered: in private life he is said to have been a most upright, kind, and amiable man; but his leading theological sentiments were clearly not those of the church in which he remained.

Clarke (William), an English divine, was born at Haghmon-abbey, in Shropshire, 1696; and after a grammar education at Shrewsbury School, was sent to St. John's College, Cambridge, of which he was elected fellow, January 17th, 1716; B. A. 1731, and M. A. 1735. He was presented by archbishop Wake, in 1724, to the rectory of Buxted, in Sussex, at the recommendation of Dr. Wotton, whose daughter he married. In 1738 he was made prebendary and residentiary of the cathedral church of Chichester. Some years before this he had given a specimen of his literary abilities, in a preface to Dr. Wotton's Leges Walliæ Ecclesiasticæ et Civiles Hoeli Boni, et Aliorum Walliæ Principum; or Ecclesiastical and Civil Laws of Howel Dha, and other princes of Wales. But Mr. Clarke's chief work was The Connexion of the Roman, Saxon, and English Coins; deducing the Antiquities, Customs, and Manners of each People

DR S. CLARKE.
CIGNANI.
CIMON.
CLIVE.
CHRYSIPPUS.
CICERO.
ST CHRYSOSTOM.
C. CIBBER.
CHURCHILL.



to Modern Times; particularly the Origin of Feudal Tenures, and of Parliaments; illustrated throughout with Critical and Historical Remarks on various Authors, both Sacred and Profane. It was published in one vol. 4to. in 1767. Mr. Clarke's last promotions were the chancellorship of the church of Chichester, and the vicarage of Amport, in 1770. He died October 21st, 1771. He had resigned, in 1768, the rectory of Buxted to his son Edward. Though antiquities were the favorite study of Mr. Clarke, he was a secret, and by no means an unsuccessful, votary of the muses. Perhaps there are few better epigrams in our language than the following, which he composed on seeing the words Domus Ultima inscribed on the vault belonging to the dukes of Richmond, in the cathedral of Chichester:—

Did he, who thus inscribed the wall,
Not read, or not believe St. Paul,
Who says there is, where'er it stands,
Another house not made with hands!
Or, may we gather from these words,
That house is not a House of Lords?

CLARKE (Henry), LL.D., a professor of mathematics, was born at Salford, near Manchester, and educated as a land surveyor. On the formation of the Manchester Philosophical Society, his Lecture in Natural and Experimental Philosophy first brought him before the public. He removed in 1802 to the Military College at Marlow, Buckinghamshire, as mathematical professor there, and published various treatises, viz. An Essay on the Usefulness of Mathematical Learning; a Dissertation on Perspective, 8vo.; another On Circulating Numbers, 8vo.; and a third On Stenography; Tabulæ Linguarum, or Grammars of most of the Modern European Languages; The Seaman's Desiderata, or Rules for Finding the Longitude at Sea; an Introduction to Geography, 12mo.; Virgil Revindicated, in answer to bishop Horsley, 4to.; Rules for Clearing the Lunar Distances from a Star or the Sun; and a translation from the Latin, entitled The Summation of Series, 4to. He died at Islington, April 30th, 1818.

CLARKE (Edward Daniel,) LL.D., a celebrated divine, and traveller of modern times, and professor of mineralogy in the university of Cambridge, was the second son of the Rev. Edward Clarke, and born in 1767. He was entered at Jesus College, Cambridge, of which society he became a fellow in 1794, and took the degree of A.M. He accompanied lord Berwick soon afterwards to Italy, and in 1799 set out with his friend Mr. Cripps on a tour through Denmark, Sweden, Lapland, Finland, Russia, Tartary, Circassia, Asia Minor, Syria, Palestine, Greece, and Turkey; returning in 1802 through Germany and France, and enriched the public libraries and institutions of his alma mater by a variety of contributions, among which was a MS. of Plato's works, and a noble statue of the Eleusinian Ceres. The British Museum was indebted to him also for the acquisition of the sarcophagus of Alexander the Great, which he discovered in the possession of the French troops in Egypt, and procured to be surrendered to our army. He commenced at Cambridge, in 1806, a course of lectures on mineralogy, and in 1808 obtained the endowment of a professorship for the encouragement of that science. Soon after his return he was presented to the rectory of Harlton in Cambridgeshire, and discharged with great assiduity his duties as a parish priest. He became even eminent as a preacher and public speaker; and was conspicuous as a warm advocate of the establishment of a Bible Society at Cambridge. His works are: Testimony of Different Authors respecting the Colossal Statue of Ceres, placed in the Vestibule of the Public Library at Cambridge, with an Account of its removal from Eleusis, 8vo. 1801-3; The Tomb of Alexander, a Dissertation on the Sarcophagus brought from Alexandria, and now in the British Museum, 4to, 1805; A Methodical Distribution of the Mineral Kingdom, folio, 1807; A Letter to the Gentlemen of the British Museum, 4to, 1807; A Description of the Greek Marbles brought from the Shores of the Euxine, Archipelago, and Mediterranean, and deposited in the Vestibule of the University Library, Cambridge, 8vo. 1809; Travels in various Countries of Europe, Asia, and Africa; part I. containing Russia, Tartary, and Turkey, 4to, 1810; Part II. containing Greece, Egypt, and the Holy Land, section 1, 4to, 1812, section 2, 1814; and a Letter to Herbert Marsh, D.D. in Reply to Observations in his Pamphlet on the British and Foreign Bible Society, 8vo. 1811. Dr. Clarke died March 9th, 1821, in Pall Mall, and was buried on the 18th with public honors in the chapel of Jesus College, Cambridge.

CLARKE (Adam), LL.D., F.S.A., and M.R.I.A., an eminent divinity scholar, and also conspicuous for the extent of his attainments in oriental languages and literature. He was born in the town of Moybeg, in the county of Londonderry, in Ireland, in what year is not exactly known; and, at the age of fourteen, was placed by his parents with Mr. Bennet, manufacturer of linen, a trade the most lucrative and respectable in that part of the kingdom. The comprehensive mind of this future great man did not bear either long or patiently the restriction to a single object, however honorable; and, returning home to the care and instruction of a pious and excellent mother, he was shortly after invited to enter as a pupil of Kingswood school, by the amiable founder of Methodism, John Wesley. This was after his own heart; and from this date he appears to have surrendered himself, in the most entire manner, to the cultivation of his mind, for the sole object of pursuing his pious and then arduous ministry. Here, too, he laid the foundation of that great knowledge he subsequently erected in ancient classics and oriental languages, in which he was his own instructor; and it was during his continuance at Kingswood that he first became possessed of a Hebrew grammar, which he purchased from the savings of a very slender allowance. His literary ambition, and the manly spirit with which he pursued the acquisition of knowledge, are strongly marked in the motto he selected for his guidance while he was yet a youth; it was—"Through desire, a man, naving separated himself, seeketh and intermeddleth with *all* wisdom." After a residence of no great length at Kingswood, he was visited by John Wesley, who examined him minutely upon doctrinal points, and plans of preaching, and, being satisfied with the account young Clarke was able to give of himself, desired him to be seated. For some minutes silence was observed by both; at length Mr. Wesley addressed himself to Clarke, saying, are you willing to become an itinerant preacher? To which he replied, "I am willing if you think me worthy." All persons again observed profound silence, while Mr. Wesley, who, for a time, sat motionless and with closed eyes, rising up and walking over to Clarke, laid his hand upon his head, and repeated these remarkable words—"May God Almighty out of heaven bless thee, my dear lad, and make thee useful in thy day and generation! Hold thyself in readiness, and in a few weeks I hope to appoint thee to a circuit." This transaction occurred when the subject of this memoir was but nineteen years of age. Having entered upon his ministry, his abilities at once discovered themselves; his chapels were constantly crowded to excess, and he obtained a character for persuasiveness, clearness, and sound learning, which never suffered any abatement or detraction to the latest occasion that he ever addressed a congregation. In the hour of danger he was not found deficient. While on a mission to the Norman Isles, his doctrines incurred the displeasure of the populace, who, savagely enough, hung a halter round his neck, and in this manner drummed him out of their town, cautioning him against any future publication of his doctrines there. But Clarke felt that he had set his hand to the plough, and, almost immediately returning to the duty of his calling, by his courage and self-devotion, converted the revilings of his enemies into admiration of his character. As a writer, he fills an honorable niche. His first essay was "A Dissertation on the Use and Abuse of Tobacco." This was followed by a work of great labour and research, called "A Bibliographical Dictionary, in 6 vols." To these are to be added, "The Bibliographical Miscellany;" "An Abridgment of Baxter's Christian Directory;" "Claude Fleury's History of the Ancient Israelites;" "The Succession of Sacred Literature;" "Shuckford's Sacred and Profane History, connected with Bishop Clayton's Strictures;" "A Translation of Sturm's Reflections;" "Clavis Biblica;" "Memoirs of the Wesley Family," and various Sermons. But the pedestal upon which his fame, as a man of erudition, is likely to find a permanent position, is his Commentary on the Bible. The variety and extent of learning accumulated and applied in Clarke's annotations excite wonder as the work of an individual; and the commentator has somewhere mentioned, in speaking of this great labour, "thus forty years of my life have been consumed." Dr. Clarke was associated with the public commissioners in arranging the records of our country, and to him was confided the care of bringing out a new edition of Rymer's Fœdera, the publication of two parts of which he superintended. Having passed a long and useful life, in which he refused, frequently, the good things of this world, and neglected all avenues to wealth or worldly aggrandizement; distinguished as a preacher and scholar, and obtaining an interest even from the circumstance of being one of those who caught a spark from the bright mind of Wesley, he died at the house of his friend, Mr. Hobbs, at Bayswater, of the cholera morbus, on the 26th day of August, 1832, in the seventy-second year of his age, and was interred in the burial-ground adjoining the Wesleyan chapel, City Road, where the remains of his friend and patron, John Wesley, had been deposited.

CLARKSBURG, a town of Virginia, the capital of Harrison county, seated on the east side of the Monongahela, forty miles above Morgantown, and nine north-west of Richmond.

CLARKSVILLE, a town of the United States in the south-western territory, and county of Tennessee, pleasantly situated on the east side of Cumberland, at the mouth of Red River. It has a court-house, in which a county-court is held quarterly. It is forty-five miles north-west of Nashville, 220 west by north of Knoxville, and 940 west by south of Philadelphia.

CLARKSVILLE, a town in the north-western territory of the United States, seated on the north side of the Ohio, within view of Louisville, a mile below the Rapids, and forty-five west of Frankfort.

CLARUS, in ancient geography, a town of Ionia, famous for an oracle of Apollo, thence named Clarius. It was built by Manto, daughter of Tiresias, who fled from Thebes after it had been destroyed by the Epigoni.

CLA'RY, *n. s.* Lat. *herminium*. An herb.

CLARY-WATER, a cordial, composed of brandy, sugar, clary-flowers, and cinnamon, with a little ambergris dissolved in it. This water is rendered either purgative or emetic, by adding resin of jalap and scammony, or crocus metallorum. Some make clary water of brandy, juice of cherries, strawberries, and gooseberries, sugar, cloves, white pepper, and coriander seeds infused, sugared, and strained.

CLASH, *v. n.*, *v. a.* & *n. s.* Teut. *klats*; Belg. *klits*; from Lat. *collido*. Opposition, collision, or the sound proceeding from it. To act with opposite power or contrary direction; to contradict; to oppose.

CLASMIUM, in natural history, a genus of fossils, of the class of gypsums. They are of a soft texture, and of a dull opaque look, being composed, as the other gypsums, of irregularly arranged flat particles. The name is derived from the flaky small particles of which they are composed. There is only one species, of a tolerably regular and even structure, though very coarse and harsh to the touch. It is of a very lively and beautiful red color, and is found in thick roundish masses, which, when broken, are seen composed of irregular arrangements of the particles, and emulate a striated texture. It will neither give fire with steel nor ferment with acids; but calcines very easily, and affords a very valuable Paris plaster, as do all the purer gypsums. It is common in Italy, and is greatly esteemed there; it is also found in some parts of England. See FLOUR SPA.

CLASP, *n. s.* & *v. a.* } Goth. *klas, klops;* Sax. clypps, from clyppan, to embrace.
CLA'SPER, *n. s.*
CLA'SP-KNIFE, *n. s.*
A hook to hold anything close, as a book or garment. To enfold; to shut up; to cling to; to catch, hold, or embrace; to enclose. Clasper, the tendrils or threads of creeping plants, by which they cling to other things for support. A clasp-knife is a knife which folds into the handle.

CLASSIC, or CLASSICAL, is chiefly applied to authors read in the classes at schools. This term is said to owe its origin to Servius Tullius, who, in order to make an estimate of every person's estate, divided the Roman people into six bands, which he called classes. The estate of the first class was not to be under £200, and these by way of eminence were called classici, classics: hence authors of the first rank came to be called classics, all the rest being said to be infra classem.

CLA'SSICK, *n. s.* & *adj.* } Lat. *classicus.* Of the first order or
CLA'SSICAL, *adj.*
rank; applied to literature it relates to authors first in order of time, and therefore to the ancient, and to first in ability and excellence.

CLASSICUM, in antiquity, the alarm for battle, given by the Roman generals; and sounded by martial music throughout the army.

CLA'SSIS, *n. s.* } Lat. *classis;* a rank or order of persons; a set of beings or things ranged
CLASS, *n. s.* & *v. a.*
CLA'SSIFY, *v.*
in distribution under some common denomination. The verb is applied to the accomplishment of this; to range according to the respective ranks of different persons or things; or according to some stated method of distribution.

He had declared his opinion of that *classis* of men, and did all he could to hinder their growth. *Clarendon.*

Segrais has distinguished the readers of poetry, according to their capacity of judging, into three *classes.* *Dryden.*

Among this herd of politicians, any one set make a very considerable *class* of men. *Addison's Freeholder.*

Whate'er of mongrel, no one *class* admits
A wit with dunces, and a dunce with wits. *Pope.*

I considered that, by the *classing* and methodising such passages, I might instruct the reader. *Arbuthnot on Coins.*

We shall be seized away from this lower *class* in the school of knowledge, and our conversation shall be with angels and illuminated spirits. *Watts on the Mind.*

There is a *class* of men, that one has sometimes the misfortune to meet with, who affect what they call a bluntness of manners, and value themselves on speaking their minds on all occasions, whether people take it well or ill. *Beattie.*

By many who live within the sound of Bow bells, the internal wonders of St. Paul's or the Tower may not be thought in the least degree interesting. Yet how justly would such persons be *classed* with the incurious of Æsop. *Monro.*

CLA'TTER, *v. a. v. n.* & *n. s.* } Goth. *klutr;* Swed. *klutter;*
CLA'TTERING, *adj.*
Bel. *klater;* Sax. *kleother, cleadur.* To make a tumultuous confused noise, generally by knocking two sonorous bodies frequently together; applied to fast and idle talking, where many persons speak together; a clatter is a clash, often repeated with great quickness, and seems to convey the idea of a sound sharper and shriller than rattle.

And on the morwe, when the day gan spring
Of hors and harneis noise and *clattering*
Ther was in the hostelries all aboute ·
And to the paleis rode ther many a route
Of lordes, upon stedes and palfreis.
Chaucer. Canterbury Tales.

The ringes on the temple dore that honge,
And eke the dores, *clatteredèn* full fast,
Of which Arcita somewhat him agast. *Id.*

Here is a great deal of good matter
Lost for lack of telling;
Now, siker, I see thou do'st but *clatter;*
Harm may come of melling. *Spenser.*

By this great *clatter,* one of greatest note
Seems bruited. *Shakspeare.*

I only with an oaken staff will meet thee,
And raise such outcries on thy *clattered* iron,
That thou oft shall wish thyself at Gath. *Milton.*

Draw next a pair of tables opening then
The House of Commons *clattering* like the men.
Marvell.

Down sunk the monster-bulk, and pressed the ground;
His arms and *clattering* shield on the vast body sound.
Dryden.

Now the sprightly trumpet from afar
Had roused the neighing steeds to scour the fields,
While the fierce riders *clattered* on their shields. *Id.*

I have seen a monkey overthrow all the dishes and plates in a kitchen, merely for the pleasure of seeing them tumble, and hearing the *clatter* they made in their fall. *Swift.*

Beneath the *clattering* iron's sound
The caverned echoes wake around.
Byron. The Giaour.

CLAVARIA, club-top, in botany, a genus of the cryptogamia class of plants, and of the order of fungi. The fungus is smooth and oblong; simple or branched; seeds dispersed over the whole surface, or collected in tubercles opening at top. Species thirty-seven, of which some are simple, and others, about a third part, branched. The chief are, 1. C. hemotades, or the oak leather club-top, exactly resembles tanned leather, except that it is thinner and softer. It is of no determinate form. It grows in the clefts and hollows of old oaks, and sometimes on ash in Ireland, and in some places of England, &c. In Ireland it is used to dress ulcers, and in Virginia to spread plasters upon, instead of leather. 2. C. militaris, and one or two other species, are remarkable for growing only on the head of a dead insect in the nympha state.

CLAVARIUM, in antiquity, an allowance made to Roman soldiers, for furnishing nails to secure their shoes with. They raised frequent mutinies, demanding largesses of the emperors under this pretence.

CLAVATA VESTIMENTA, in antiquity, habits adorned with purple clavi, which were either broad or narrow. See CLAVUS.

CLA'VATED, *adj.* Lat. *clavatus.* Knobbed; set with knobs.

These appear plainly to have been *clavated* spikes of some kind of echinus ovarius. *Woodward on Fossils.*

CLAUDA, a small island near Crete, which Paul and his company passed, in their voyage to Rome. Acts xxvii. 16. It is now called Gozzo.

CLAUDE (John), a French protestant divine, born in the provine of Agenois, in 1690. Messrs. de Port Royal using their utmost endeavours to convert M. de Turenne to the catholic faith, presented him with a piece calculated to that end, which his lady engaged Claude to answer; and his performance gave rise to the most famous controversy that was ever carried on in France between the Roman Catholics and Protestants. On the revocation of the edict of Nantes, he retired to Holland, where he met with a kind reception, and was honored with a considerable pension by the prince of Orange. He died in 1687; and left a son, Isaac Claude, whom he lived to see minister of the Walloon church at the Hague, and who published several of the excellent works of his deceased father.

CLAUDE OF LORRAIN, or **CLAUDE GELEE**, a celebrated landscape painter, and a striking example of the efficacy of industry to supply, or call forth, genius. Claude was born in 1600, and put apprentice to a pastry-cook; he afterwards rambled to Rome to seek a livelihood; but, being unacquainted with the language, nobody employed him. He at last fell in with Augustino Trasso, who hired him to grind his colors. Trasso, hoping to make him serviceable in some of his greatest works, taught him by degrees the rules of perspective and the elements of design. Claude at first did not know what to make of those principles of art; but being encouraged, and not failing in application, he came at length to understand them. He exerted his utmost industry to explore the true natural principles of painting, for which purpose he studied in the open fields; where he often continued from sun-rise till the dusk of the evening compelled him to withdraw. It was his custom to sketch whatever he thought beautiful or striking; and every curious tinge of light, on all kinds of objects, he marked in his sketches with a similar color; from which he perfected his landscapes with so much nature, and gave them such an appearance of truth, as proved superior to any artist that ever painted in that style. Whatever struck his imagination, while he observed nature abroad, it was so strongly impressed on his memory, that on his return to his work he never failed to make the happiest use of it. His skies are full of lustre, and every object is properly illumined. His distances are admirable, and in every part there is a delightful union and harmony. His invention is pleasing, his coloring delicate, and his tints have such an agreeable sweetness and variety, as have been but imperfectly imitated by the best subsequent artists, but were never excelled. He gave an uncommon beauty to his finished trees by glazing; and in his large compositions, which he painted in fresco, he was so exact that the distinct species of every tree might readily be distinguished. As to his figures, they were very indifferent; and he was so conscious of his deficiency in this respect that he usually engaged other artists who were eminent to paint them for him, particularly Courtois and Philip Laura. His pictures are now very rare, especially such as are undamaged; no price is thought superior to their merit. To avoid a repetition of the same subject, and to detect such copies of his works as might be injurious to his fame, by being sold for originals, it was his custom to draw, in a paper book, the designs of all those pictures which were transmitted to different countries; and on the back of the drawings, he wrote the name of the person who had been the purchaser. That book which he titled Libro de Verita, was lately in the possession of the duke of Devonshire.

CLAUDE (St.), a town of France, in the department of Jura, and ci-devant province of Franche Compte, seated among the mountains on the river Lisson. In this town are many fine public fountains. Population 3600. It is twenty-eight miles north-west of Geneva.

CLAUDE (St.), a high mountain of France, in the department of Jura. It forms a part of mount Jura, and affords a fine prospect of Swisserland and Mont Blanc, the lake and town of Geneva, and the Pays de Vaud.

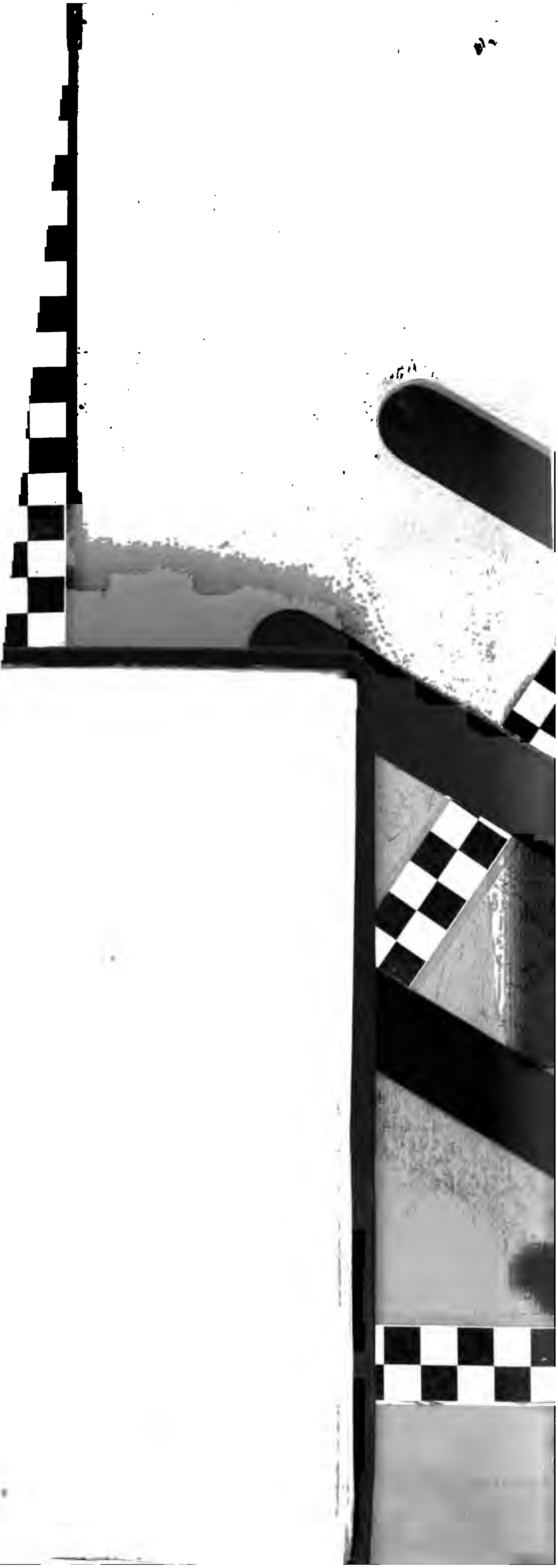
CLA'UDENT, *adj.* Lat. *claudens.* Shutting; enclosing; confining.

CLAUDIA, a vestal virgin at Rome, who, being suspected of unchastity, is said to have been cleared from that imputation in the following manner; the image of Cybele being brought out of Phrygia to Rome in a barge, and it happening to stick so fast in the river Tyber that it could not be moved, she tying her girdle, the badge of chastity, to the barge, drew it along to the city, which a thousand men were not able to do.

CLAUDIA AQUA, or **AQUA APPIA**, water conveyed to Rome by a canal or aqueduct of eleven miles in length, the contrivance of Appius Claudius the censor, and the first structure of the kind, in the year of Rome 441.

CLAUDIA LEX, the Claudian law, in antiquity. Of these there were several; such as, 1. De Comitiis, enacted by M. Claudius Marcellus, A. U. C. 702. It ordained, that at public elections of magistrates no notice should be taken of the votes of such as were absent. 2. De Usura, which forbade people to lend money to minors on condition of payment, after the decease of their parents. 3. De Negotiatione, by Q. Claudius the tribune, 535. It forbade any senator, or father of a senator, to have any vessel containing above 300 amphoræ, for fear of their engaging themselves in commercial schemes. It also prohibited the same thing to the scribes and the attendants of the questors, as it was naturally supposed that people, who had any commercial connexions, could not be faithful to their trust, nor promote the interest of the state. 4. A law enacted A.U.C. 576, to permit the allies to return to their respective cities, after their names were enrolled. Liv. 41. c. 9. 5. Another to take away the freedom of the city of Rome from the colonists which Cæsar had carried to Novocomum.

CLAUDIA VIA, or **CLODIA VIA**, a road of ancient Rome, which, beginning at the Pons Milvius, joined the Flaminia, passing through



CLAUDE LORRAINE
BERNARD.
Dr. S. CLARKE.
CLAVIUS.
J. CLAUDE.
S. LE CLERC.
CLEMENT XIV.
CLEMENT VII.
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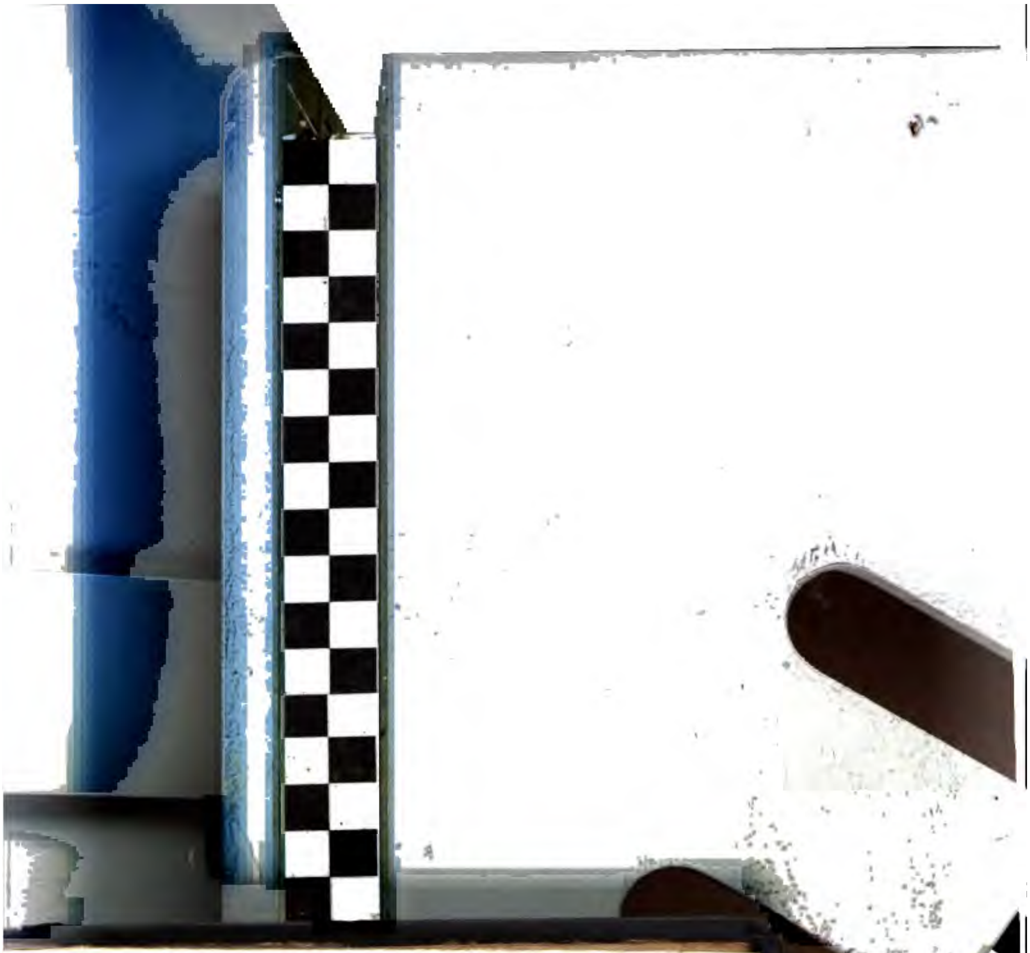


Etruria, on the south side of the Lacus Sebantinus, and striking off from the Cassia, and leading to Lucca: large remains of it are to be seen above Bracciano.

CLAUDIANUS (Claudius), a Latin poet, who flourished in the fourth century, under Theodosius, Arcadius and Honorius. He came to Rome A. D. 395, when he was about thirty years old; and insinuated himself into Stilicho's favor; who, though a Goth by birth, was so considerable a person under Honorius that he may be said for many years to have governed the western empire. Stilicho afterwards fell into disgrace and was put to death; and it is supposed that the poet was involved in the misfortunes of his patron; but he rose afterwards to great favor; and obtained several honors both civil and military. There are a few little Christian poems on sacred subjects, which have been ascribed by some critics to Claudian; but St. Austin, who was contemporary with him, expressly says that he was a Heathen.

To CLAUDICATE, *v. n.* Lat. *claudico.* To halt; to limp.

CLAUDICA'TION, *n. s.* from *claudicate.* The act or habit of halting.

CLAVE, the preterite of cleave. See CLEAVE.

CLAUDIUS (Appius), a Sabine by birth, one of the principal inhabitants of Regillum. His merit having drawn the envy of his fellow citizens upon him, he retired to Rome with all his family. He was admitted into the senate, and was made consul, with Publius Servilius Priscus, A. U. C. 258: but he was hated by the plebeians, being an austere opposer of their clamors and seditions. The Claudian family continued long one of the most illustrious of the patrician families in Rome; and several in succession of the name of Appius supported the same stern aristocratic character, that distinguished their first founder.

CLAUDIUS (Caius). See CARTHAGE.

CLAUDIUS I. emperor of Rome. See ROME, HISTORY OF.

CLAUDIUS II. (Flavius), surnamed Gothicus, signalised himself by his courage and prudence under Valerian and Galienus; and on the death of the latter was declared emperor, A. D. 268. He put to death Aureolus, the murderer of Galienus; defeated the Germans; and in 296 marched against the Goths, who ravaged the empire with an army of 300,000 men, which he at first harassed, and the next year entirely defeated; but a contagious disease, which had spread through that vast army, was introduced into that of the Romans; and the emperor himself died of it a short time after, aged fifty-six.

CLA'VELLATED, *adj.* low. Lat. *clavellatus.* Made with burnt tartar; a chemical term.

Air, transmitted through *clavellated* ashes into an exhausted receiver, loses weight as it passes through them. *Arbuthnot.*

CLA'VER, *n. s.* Sax. clæpeꞃ pyꞃt. This is now universally written clover, though not so properly. See CLOVER.

CLAVERACK, a populous town of New York, the capital of Columbia county, pleasantly seated on a large plain about six miles east of Hudson, near the creek. It has a Dutch church, and a court-house, in which courts of common-pleas and general sessions are held quarterly. The township contains an area of seventy square miles, and between 3000 and 4000 inhabitants.

CLAVICHORD, and CLAVICITHERIUM, two musical instruments used in the sixteenth century. They were of the nature of the spinet, but of an oblong figure. The first is still used by the nuns in convents; and, that the practitioners may not disturb the sisters in the dormitory, the strings are muffled with small bits of fine woollen cloth.

CLA'VICLE, *n. s.* Lat. *clavicula.* The collarbone.

Some quadrupeds can bring their fore feet unto their mouths; as most that have *clavicles,* or collarbones. *Brown.*

A girl was brought with angry wheals down her neck, towards the *clavicle.* *Wiseman's Surgery.*

CLAVICLE, in anatomy, the collar-bone. See ANATOMY.

CLAVYCYMBALUM, in antiquity, a musical instrument with thirty strings. Modern writers apply the name to our harpsichords.

CLAVIS, Latin, properly signifies a key; and is sometimes used in English to denote an explanation of some obscure passage of any book or writing.

CLAVI, VESTIUM, were flowers or studs of purple, interwoven with or sewed upon the garments of knights or senators; the former used them narrow, the latter broad.

CLAVIUS (Christopher), a German Jesuit, born at Bamberg, who excelled in the knowledge of the mathematics, and was one of the chief persons employed to rectify the calendar; the defence of which he also undertook against those who censured it, especially Scaliger. He died at Rome in 1618, aged seventy-five. His works have been printed in five volumes folio; the principal of which is his commentary on Euclid's Elements.

CLAUSE, *n. s.* Lat. *clausula.* A sentence; a single part of a discourse; a subdivision of a larger sense; so much of a sentence as is to be construed together; an article, or particular stipulation.

To wise is he to doen so grete a vice;
Ne als I n'il him never so cherice,
That he shall make a vaunt, by juste cause;
He shall me never bind in soche a *clause.*
Chaucer. Troilus and Creseide.

God may be glorified by obedience, and obeyed by performance of his will, although no special *clause* or sentence of Scripture be in every such action set before men's eyes to warrant it. *Hooker.*

The *clause* is untrue concerning the bishop. *Id.*

When, after his death, they were sent both to Jews and Gentiles, we find not this *clause* in their commission. *South.*

But when he came the odious *clause* to pen
That summons up the parliament agen,
His writing-master many times he ban'd,
And wished, himself, the gout to seize his hand.
Marvell.

CLAUSENBURG, the capital of Transylvania, and of a county of this name, is situated

on the Little Szamos River in a beautiful valley, surrounded by mountains. It contains a noble public square, and several elegant streets and churches. The public gardens and walks are also worth notice. The Old Town was fortified by the Romans, and formed the sixth colony of the emperor Trajan, whose name is still to be seen on one of the gates. Population in 1797, 14,522. On 12th of August, 1798, the greater part of the town was destroyed by fire, but it has since been rebuilt. 145 miles N. N. E. of Belgrade, and 225 E. S. E. of Vienna.

CLAUSTHAL, a considerable town of Hanover, in the Upper Hartz, near Zellerfeld. Here is the silver mint for the Hanoverian part of the Hartz, the value of the coinage of which is yearly £100,000. The mine-office, two churches, a public school, and orphan house, are respectable buildings. The population, 8000, are almost all miners, twenty-five miles north-east of Nordheim.

CLA'USTRAL, *adj.* from Lat. *claustrum.* Relating to a cloister, or religious house.

Claustral priors are such as preside over monasteries, next to the abbot or chief governour in such religious houses. *Ayliffe.*

CLA'USURE, *n. s.* Lat. *clausura.* Confinement; the act of shutting; the state of being shut.

In some monasteries the severity of the *clausure* is hard to be born. *Geddes.*

CLAVUS, in antiquity, an ornament upon the robes of the Roman senators and knights; which was more or less broad, according to the dignity of the person; hence the distinction of tunica angusti-clavia and lati-clavia.

Clavus, Annalis, in antiquity, the nail annually fixed by the Romans to mark their years. So rude and ignorant were the Romans in the beginning of their state, that the driving a nail was the only method they had of keeping a register of time. There was an ancient law ordaining the chief prætor to fix a nail every year on the ides of September; it was driven into the right side of the temple of Jupiter Optimus Maximus, towards Minerva's temple. The Etrurians used likewise to drive nails into the temple of their goddess Nortia with the same view.

Clavus, in medicine and surgery, is used in several significations: 1. An indurated tubercle of the uterus: 2. A chirurgical instrument of gold, mentioned by Amatus Lusitanus, designed to be introduced into an exulcerated palate, for the better articulation of the voice: 3. A corn on the foot.

Clavus Hystericus is a shooting pain in the head, between the pericranium and cranium, which affects women who are troubled with hysteries.

Clavus Oculorum, according to Celsus, is a callous tubercle on the white of the eye, taking its denomination from its figure.

CLAW, *n. s.* & *v. a.*
Cla'wed, *adj.*

Goth *klo*, *klæ*; Swed. *klo*; Sax. *claw*; Bel. *clauw*. See to Cleave. The toe of a beast or bird armed with sharp nails; properly a division of the foot. The pincers or holders of a shell-fish: to tear with nails or claws; to scratch and tear in general; to tickle; to please, hence clawback.

The coke of London while the reve spake,
For joye (him thought) he *clawed* him on the bak.
Chaucer. Canterbury Tales.

I saw her range abroad to seek her food,
To embrue her teeth and *claws* with lukewarm blood.
Spenser.

Look if the withered elder hath not his poll *clawed* like a parrot. *Shakspeare.*

I must laugh when I am merry, and *claw* no man in his humour. *Id.*

But we must *claw* ourselves with shameful
And heathen stripes, by their example. *Hudibras.*
They for their own opinions stand fast,
Only to have them *clawed* and canvast. *Id.*
What's justice to a man, or laws,
That never comes within their *claws*? *Id.*

I am afraid we shall not easily *claw* off that name. *South.*

Among quadrupeds, of all the *clawed*, the lion is the strongest. *Grew's Cosmologia.*

Meanwhile they trim their plumes for length of flight,
Whet their keen beaks, and twisting *claws* for fight.
Beattie.

Claw, among zoologists implies only the sharp-pointed nail of a bird or quadruped, not the whole foot.

CLA'WBACK, *n. s.* from claw and back. A flatterer; a sycophant; a wheedler.

The Pope's *clawbacks.* *Jewel.*

CLAY, *n. s.* & *v. a.*
Cla'yey, *adj.*
Cla'yish, *adj.*
Cla'ymarl, *n. s.*
Cla'y-cold, *adj.*
Cla'ypit, *n. s.*

Teut. *kley*; Bel. *kley*; Sax. *clæg*; Lat. *glis*. Poetically applied to earth in general; to the terrestrial elements; to the human body; to matter as opposed to mind. Strictly it signifies a tenacious sort of earth; such as will mould into a certain form. Organic bodies when life is extinct are called clay and clay-cold.

Sal tartre, alcali and salt preparat,
And combust materes, and coagulet;
Cley made with hors and mannes here and oile
Of tartre alum glos, berme, wort, and argoile.
Chaucer. Canterbury Tales.

Why should our *clay*
Over our spirits so much sway? *Donne.*

Clays are earths firmly coherent, weighty and compact, stiff, viscid, and ductile to a great degree, while moist; smooth to the touch, not easily breaking between the fingers, nor readily diffusible in water, and, when mixed, not readily subsiding from it.
Hill on Fossils.

Deep Acheron,
Whose troubled eddies, thick with ooze and *clay*,
Are whirled aloft. *Dryden.*

Some in a lax or sandy, some a heavy or *clayey* soil. *Denham.*

I washed his *clay-cold* corse with holy drops,
And saw him laid in hallowed ground. *Rowe.*

The sun, which softens wax, will harden *clay.* *Watts.*

Small beer proves an unwholesome drink; perhaps, by being brewed with a thick, muddish, and *clayish* water, which the brewers covet.
Harvey on Consumptions.

'Twas found in a *clay-pit.* *Woodward on Fossils.*

clay, and is near a-kin to it;
sometimes mixed with chalk.
Mortimer's Husbandry.

ye dear illusions stay,
s the lovely *clay*. *Beattie.*

eams, after a rough day
ovet most; and yet
k from more quiescent *clay*!
Byron.

No, my gallant boy;
. But what is one life?
irit shall command them still.
norant that I am but *clay*,
querors, then do as ye may.
Id. Deformed Transformed.

ral history, is a kind of earth
; formerly gave the name of ar-
ous earth, but which, in the new
lature, is called alumina See

easily diffused and suspended
not soluble in any sensible de-
len application of strong heat
ternal parts, which afterwards
pansion of the moisture within.
ial heat pure clay contracts very
hard, and full of cracks or fis-
sence of silicious earth in com-
ere it usually constitutes above
, renders the contraction more
hout, and prevents the cracks;
other way than by rendering
nerous, and too small to be per-
n thus baked, it constitutes all
f bricks, pottery, and porcelain.
d in a strong heat, give fire with
rty that may be attributed to the
they contain, which cannot act on
s firmly set in the hardened clay.
no longer kneadable with water,
ly pulverised as mechanical means
ce it has been inferred, that clays
tility to a kind of gluten, which
o be dissipated by heat. They re-
perty, however, by a solution in
precipitation; whence it should
end either on a minute portion of
d in clays, or the smallness of the
n precipitated. Clays are of very
. Some varieties of the porcelain
perfectly white in the fire. The
orcelain clay, however, cannot be
without cracking; and therefore we
great length in hardening it. The
ost their value as medicines; but are
ed to make bricks, potter's ware, &c.
f indispensable use in polishing, and
on many occasions, used for making
ast metals in. In agriculture, clay is
ly necessary; excepting, however,
o Cronstadt, the white and ferment-
bove mentioned, for which no use has
iscovered. By its coherence, clay re-
idity; on which perhaps its chief
promoting vegetation depends. Dr.
erves, that clay, when mixed with a
ortion of water, and kneaded a little,
a remarkably ductile adhesive mass,
ot easily dissolved in more water, and,
t thin and fluid, requires great trouble.

Hence it is employed for confining large quantities of water, as in making canals and dykes: but the soil must either contain a great quantity of clay naturally, or some quantity of it must be spread on the bottom; or the water itself must deposit a quantity of clay sufficient to render it tight. Hence also we see the bad effects of allowing cattle to tread much on clay grounds when wet; for the clay is reduced to such an adhesive mass, as not to admit the roots to penetrate the soil, or the water to enter to the roots. Clay is used in the refining of sugar, for which no other property is requisite than that it may not dry too soon; but that species used in fulling, must, if we were to judge à priori, besides the fineness of its particles, be of a dry nature, or such as attracts oils; though this quality perhaps may not be found in all those clays that are now employed in the business. According to Fabroni, the pure white clay, being calcined in a strong heat, acquires a phosphorescent quality.

CLAYES, *n. s.* Fr. *claye*. In fortification, wattles made with stakes interwoven with osiers, to cover lodgments.

CLAYTON (Dr. Robert, F. R. S.) a learned prelate of the last century, was advanced to the bishopric of Killala, January 23d, 1729; translated to the see of Cork, December 19th, 1735; to that of Clogher, August 26th, 1745; and died much lamented, February 25th, 1758. His publications are: 1. A Letter in the Philosophical Transactions, No. 461, p. 813, giving an account of a Frenchman seventy years old (at Inishanan in his diocese of Cork,) who gave suck to a child. 2. The Chronology of the Hebrew Bible vindicated, &c. 1751, 4to. 3. An Impartial Enquiry into the Time of the coming of the Messiah, 1751, 8vo. 4. An Essay on Spirit, 1751, 8vo. 5. A Vindication of the Histories of the Old and New Testament, in Answer to the Objections of the late lord Bolingbroke, 1752, 8vo. reprinted in 1753. 6. A Defence of the Essay on Spirit, with Remarks on the several pretended Answers; and which may serve as an Antidote against all that shall ever appear against it, 1753, 8vo. 7. A Journal from Grand Cairo to Mount Sinai, and back again, translated from a MS. written by the Prefetto of Egypt, in company with some missionaries de propagandâ fide at Grand Cairo; to which are added, Remarks on the Origin of Hieroglyphics, and the Mythology of the ancient Heathen, 1753, 4to. and 8vo. 8. Some thoughts on Self-love, Innate Ideas, Freewill, Taste, Sentiments, Liberty, and Necessity, &c. occasioned by reading Mr. Hume's Works, and the short Treatise written in French by lord Bolingbroke on Compassion, 1754, 8vo. 9. A Vindication of the histories of the Old and New Testament, Part II. 1754, 8vo. 10. Letters between the bishop of Clogher and Mr. William Penn, concerning Baptism, 1755, 8vo. 11. A Speech made in the House of Lords in Ireland, on Monday, February 2d, 1756, for omitting the Nicene and Athanasian Creeds out of the Liturgy, &c. 1756, 8vo. 12. A Vindication, Part III. 1758, 8vo. The three parts of the Vindication, with the Essay on Spirit, were reprinted by Mr. Bowyer, in 1 vol, 8vo. 1759, with notes and an index.

CLAYTONIA, in botany, a genus of the monogynia order, and pentandria class of plants, natural order thirteenth, succulentæ: CAL. bivalved: COR. pentapetalous: STIG. trifid: CAPS. trivalved, unilocular, and trispermous. Species three, natives of America. They are very low herbaceous plants, with white flowers; and are possessed of no remarkable property.

CLAZOMENA, or CLAZOMENÆ, one of the twelve ancient cities of Ionia, situated near Colophon. The city was small, its port on the N.N.W. side of the island. Traces of the walls are found by the sea; and on a hill are vestiges of a theatre. A hovel or two made with stones piled, are all the present structures; and these are chiefly frequented by fishermen, and by persons employed to drive away birds when the grain ripens. Clazomenæ was the birth place of Anaxagoras.

CLEAN, *adj.*, *v. a.* & *adv.*
CLE'ANLILY, *adv.*
CLE'ANLINESS, *n. s.*
CLE'ANLY, *adj.* & *adv.*
CLE'ANNESS, *n. s.*

Sax. clœn, which does not appear, says Thomson, to have any cognate unless it be *hlæn*; Teut. Swed. and Bel. *klein*, thin, slender, small; whence Bel. *kleinzen*, to purify liquor; to make it thin, in opposition to thick. Our word fine is also thin, small, pure, bright; but the Sax. word may have been confounded with *gloen*; Swed. *glan*; Welch, *glan*, bright, fair, pure, neat, corresponding with clear. The word, in all its applications and derivatives, signifies free from dirt or filth, pure. It is applied to anything that is elegant either in form or act; to whatever is nice; neatness in shape or construction, and dexterity in execution, is called clean; metaphorically applied to the absence of moral impurity; to what is chaste, guiltless and innocent To be clean is also to be free from the taint of any leprous or loathsome disease. To clean anything is to undefile it. The adjectives are employed by the older writers to signify perfectly, fully, completely: but in this sense are now obsolete.

If the plague be somewhat dark, and spread not in the skin the priest shall pronounce him *clean*. *Leviticus.*

He that hath *clean* hands and a pure heart. *Psalms.*

Create in me a *clean* heart, O God! *Id.*

They make *clean* the outside of the cup and of the platter, but within they are full of extortion and excess. *Matthew.*

Therefore we mendiants we sely freres,
Ben wedded to poverte and continence,
To charitee, humblesse, and abstinence.
To persecution for rightwisnesse,
To weping misericorde, and to *clenenesse*.
Chaucer's Canterbury Tales.

The *clenenesse* and the fasting of us freres,
Making that Crist accepteth our praieres. *Id.*

Through his fine handling, and his *cleanly* play,
All those royal signs had stole away. *Spenser.*

Both his hands, most filthy feculent,
Above the water were on high extent,
And feined to wash themselves incessantly;
Yet nothing *cleaner* were for such intent,
But rather fouler. *Id. Faerie Queene.*

Their actions have been *clean* contrary unto those before mentioned. *Hooker.*

Being seated, and domestick broils
Clean overblown. *Shakspeare.*

If I do grow great, I'll leave sack, and live *cleanly*, as a nobleman should. *Id. Henry IV.*

He shewed no strength in shaking of his staff, but the fine *cleanness* of bearing it was delightful. *Sidney.*

The mistress thought it either not to deserve, or not to need, any exquisite decking, having no adorning but *cleanliness*. *Id.*

The timber and wood are in some trees more *clean*, in some more knotty. *Bacon's Natural History.*

Perhaps human nature meets few more sweetly relishing and *cleanly* joys, than those that derive from successful trials. *Glanville.*

Next that shall mountain 'sparagus be laid,
Pulled by some plain but *cleanly* country maid.
Dryden.

In our fantastick climes, the fair
With *cleanly* powder dry their hair. *Prior.*

An ant is a very *cleanly* insect, and throws out of her nest, all the small remains of the corn on which she feeds. *Addison.*

I shall speak nothing of the extent of this city, the *cleanliness* of its streets, nor the beauty of its piazza. *Id.*

The *cleanness* and purity of one's mind is never better proved than in discovering its own faults at first view. *Pope*

Pope came off *clean* with Homer; but they say
Broome went before, and kindly swept the way.
Henley.

Through winter streets to steer your course aright,
How to walk *clean* by day, and safe by night,
How jostling crowds with prudence to decline,
When to assert the wall, and when resign,
I sing. *Gay.*

Their tribes adjusted, *cleaned* their vigorous wings,
And many a circle, many a short essay,
Wheeled round and round. *Thomson*

Examine well
His milk-white hand is hardly *clean*,—
But here and there an ugly smutch appears.
Cowper.

The dingy denizens are reared in dirt;
No personage of high or mean degree
Doth care for *cleanness* of surtout or shirt,
Though shent with Egypt's plague, unkempt, unwashed, unhurt. *Byron. Childe Harold.*

CLEANSE, *v. a.*
CLE'ANSER, *n. s.*

Sax. clænrian. To free from filth or dirt, by washing or rubbing; to purify from guilt; to free from noxious humors by purgation; to free from cutaneous and loathsome disease; to scour; to rid of all offensive things.

The blueness of a wound *cleanseth* away evil. *Proverbs.*

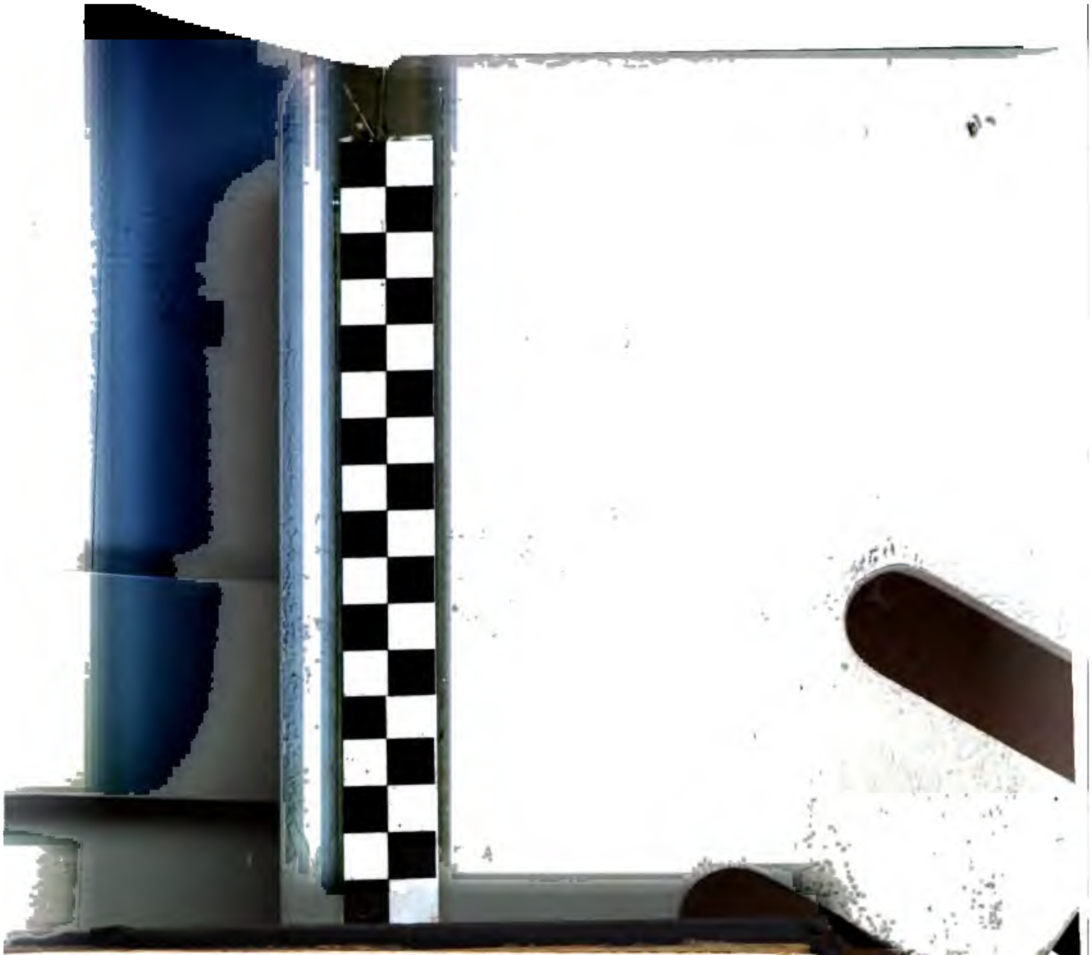
Show thyself to the priest, and offer for thy *cleansing* those things which Moses commanded. *Mark*, i. 44.

Canst thou not minister to a mind diseased,
And, with some sweet oblivious antidote,
Cleanse the stuffed bosom of that perilous stuff
Which weighs upon the heart? *Shakspeare.*

Not all her odorous tears can *cleanse* her crime,
The plant alone deforms the happy clime. *Dryden.*

Cleanse the pale corps with a religious hand
From the polluting weed and common sand. *Prior.*

This oil, combined with its own salt and sugar, makes it saponaceous and *cleansing*, by which quality it often helps digestion, and excites appetite. *Arbuthnot on Aliments.*



If there happens an imposthume, honey, and even honey of roses, taken inwardly, is a good *cleanser*. *Id.*

Those baits will best reward the fisher's pains,
Whose polished tails a shining yellow stains;
Cleanse them from filth to give a tempting gloss,
Cherish the sullied reptile race with moss.
Gay's Rural Sports.

CLEANTHES, a stoic philosopher, a disciple of Zeno, flourished A. A. C. 240. He maintained himself in the day by working in the night; being questioned by the magistrates how he subsisted, he brought a woman for whom he kneaded bread, and a gardener for whom he drew water; and refused a present from them. He composed several works, of which there are now only a few fragments remaining.

CLEAR, *v. n., adj.* & *adv.*
CLE'ARANCE, *n. s.*
CLE'ARER, *n. s.*
CLE'ARLY, *adv.*
CLE'ARNESS, *n. s.*
CLE'AR-SIGHTED.
French, *claire*; Swedish, *klar*; from Lat. *clarus.* Bright; manifest; pure; free. Very numerous are its applications, most of them retaining the primitive sense; others varying but slightly. It is opposed to whatever is dark, opaque, nebulous, or cloudy; applied to objects, it conveys the idea of pellucid, transparent, luminous, simple, unmixed, serene, unincumbered; free, as empty space. To subjects, it signifies that which is perspicuous, unambiguous, indisputable; evident, undeniable, apparent, manifest; free from deductions. To the human mind, it means whatever is perspicuous, sharp, acute, quick of apprehension, unprepossessed, impartial. To the disposition, cheerful; free from distress. To the character, unspotted, guiltless, irreproachable. Applied to sound, it signifies sounding distinctly, plainly, articulately. The verb has all these applications, and, in addition, it means to make pure; to resolve a compound into its simple elements; to clarify, as liquors. To clear is also to grow bright, transparent, &c. &c.

Clere was the day (as I have told or this);
And Theseus, with alle joye and blis;
With his Ipolita, the fayre queen;
And Emelie, yclothed all in grene;
On hunting ben they ridden really.
Chaucer. Canterbury Tales.

Mysteries of grace and salvation, which were but darkly disclosed unto them, have unto us more *clearly* shined. *Hooker.*

Whereof conceiving shame and foul disgrace,
Albe her guiltless conscience her *cleared*,
She fled into the wilderness a space,
Till that unweeldly burden she had reard,
And shund dishonour, which as death she feard.
Spenser.

Leucippe, of whom one look, in a *clear* judgment, would have been more acceptable than all her kindness so prodigally bestowed. *Sidney.*

Love, more *clear* than yourself, with the *clearness*, lays a night of sorrow upon me. *Id.*

Duncan has been so *clear* in his great office.
Shakspeare.

Think that the *clearest* gods, who make them honours
Of men's impossibilities, have preserved thee. *Id.*

So foul a sky *clears* not without a storm. *Id.*

My hands are of your colour; but I shame
To wear a heart so white:
A little water *clears* us *of* this deed. *Id*

Finding ourselves too slow of sail, we put on a compelled valour, and in the grapple I boarded them: on the instant they got *clear* of our ship. *Id.*

There is almost no man but sees *clearlier* and sharper the vices in a speaker than the virtues.
Ben Jonson.

By a certain day they should *clearly* relinquish unto the king all their lands and possessions.
Davies on Ireland.

He that doth not divide, will never enter into business; and he that divideth too much, will never come out of it *clearly*. *Bacon's Essays.*

He that *clears* at once, will relapse; for, finding himself out of straits, he will revert to his customs; but he that *cleareth* by degrees, induceth a habit of frugality, and gaineth as well upon his mind as upon his estate. *Id.*

Glass in the furnace grows to a greater magnitude, and refines to a greater *clearness*, only as the breath within is more powerful, and the heat more intense.
Id.

When the case required dissimulation, if they used it, the former opinion spread abroad, of their good faith and *clearness* of dealing, made them almost invincible. *Id.*

Now *clear* I understand
What oft my steadiest thoughts have searched in vain.
Milton.

The hemisphere of earth, in *clearest* ken,
Stretched out to the amplest reach of prospect lay. *Id.*

Michael from Adam's eyes the film removed,
Which that false fruit, that promised *clearer* sight,
Had bred. *Id.*

Remained to our almighty foe
Clear victory; to our part loss, and rout
Through all the empyrean. *Id.*

Your eyes, that seem so clear,
Yet are but dim, shall perfectly be then
Opened and *cleared*. *Id.*

And the *clear* sun on his wide watery glass
Gazed hot. *Id.*

Mother of science, now I feel thy power
Within me *clear*, not only to discern
Things in their causes, but to trace the ways
Of highest agents, deemed however wise. *Id.*

Sternly he pronounced
The rigid interdiction, which resounds
Yet dreadful in mine ear, though in my choice
Not to incur; but soon his *clear* aspect
Returned, and gracious purpose thus renewed. *Id.*

Clearsighted reason wisdom's judgment leads,
And sense, her vassal, in her footsteps treads.
Denham.

The stream is so transparent, pure, and *clear*,
That, had the self-enamoured youth gazed here,
He but the bottom, not his face, had seen. *Id*

The sun much brighter, and the sky more *clear*,
He finds the air and all things sweeter here.
Marvell.

When magpies and parrots cry, 'walk, knaves, walk!'
It is a *clear* proof that birds, too, may talk. *Id.*

Whatever, a foreigner, who purchases land here, gives for it, it is so much every farthing *clear*-gain to the nation; for that money comes *clear* in, without carrying out anything for it. *Locke.*

Though the peripatetick philosophy has been most eminent in its way, yet other sects have not been wholly *clear* of it. *Id.*

Many men reason exceeding *clear* and rightly, who know not how to make a syllogism. *Locke.*

None is so fit to correct their faults, as he who is *clear from* any in his own writings. *Dryden.*

When, in the knot of the play, no other way is left for the discovery, then let a god descend, and *clear* the business to the audience. *Id.*

To *clear* herself,
For sending him no aid, she came from Egypt. *Id.*

I will appeal to the reader, I am sure he will *clear* me *from* partiality. *Id.*

When you are examining these matters, do not take into consideration any sensual or worldly interest; but deal *clearly* and impartially with youselves. *Tillotson.*

How! wouldst thou *clear* rebellion? *Addison.*

Gold is a wonderful *clearer* of the understanding: it dissipates every doubt and scruple in an instant. *Id.*

A statute lies hid in a block of marble; and the art of the statuary only *clears* away the superfluous matter, and removes the rubbish. *Id. Spectator.*

If he chances to think right, he does not know how to convey his thoughts to another with *clearness* and perspicuity. *Id.*

He *clears* but two hundred thousand crowns a year, after having defrayed all the charges of working the salt. *Id.*

I much approved of my friend's insisting upon the qualifications of a good aspect and a *clear* voice. *Id.*

Our common prints would *clear* up their understanding, and animate their minds with virtue. *Id. Spectator.*

Multitudes will furnish a double proportion towards the *clearing* of that expense. *Id. Freeholder.*

Hark! the numbers soft and *clear*
Gently steal upon the ear;
Now louder and yet louder rise,
And fill with spreading sounds the skies *Pope.*

The cruel corporal whispered in my ear,
Five pounds, if rightly tipt, would set me *clear*. *Gay.*

Now, sporting muse, draw in the flowing reins,
Leave the *clear* streams awhile for sunny plains.
Gay's Rural Sports.

Augustus, to establish the dominion of the seas, rigged out a powerful navy to *clear* it of the pirates of Malta. *Arbuthnot.*

Christianity first *clearly* proved this noble and important truth to the world. *Rogers.*

Simplicity apace
Tempers his rage; he owns her charms divine,
And *clears* the' ambiguous phrase, and lops the' unwieldy line. *Beattie.*

And her brow *cleared*, but not her troubled eye;
The wind was down, but still the sea ran high. *Byron.*

CLEARCHUS, a Lacedæmonian, who was sent to quiet the Byzantines; but being recalled, refused to obey, and fled to Cyrus the younger, who gave him the command of 13,000 Greek soldiers. He obtained a victory over Artaxerxes, who was so enraged at the defeat, that when Clearchus fell into his hands by the treachery of Tissaphernes, he put him immediately to death. Also a tyrant of Heraclea in Pontus, who was killed by Chion and Leonidas, Plato's pupils, during the celebration of the festivals of Bacchus. He had enjoyed the sovereign power twelve years.

CLEAR'STARCH, *v. a.*, from clear and starch. To stiffen with starch.

He took his present lodging at the mansion-house of a tailor's widow, who washes and can *clearstarch* his bands. *Addison.*

CLEATS, in naval affairs, pieces of wood having one or two projecting ends whereby to fasten the ropes: some of them are fastened to the shrouds below for this purpose, and others nailed to different places of the ship's deck or sides.

Belaying Cleat, fig. 1. is formed with two arms, one on each side the centre or middle part, and nailed or bolted to the side, for the purpose of belaying the running-rigging to.

Mast Cleat, fig. 2, is made with a score, to admit a seizing, a long hole in the centre, for an under seizing, and two round holes, by which the seizing may be crossed.

fig. 1.

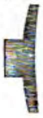


fig. 2.

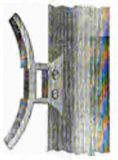
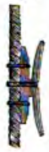


fig. 3.



Shroud Cleat, fig. 3. is formed like the belaying cleats, having two arms, the remaining part being straight, and grooved on the edge. It has scores cut towards the extremity for the seizings to lie in, which are naked, and a groove in the part where the shroud lies.

CLEAVE, *v. n.* & *v. a.*
CLE'AVER, *n. s.*
CLEFT, *n. s.* & *part. past.*

} Pret. I clave; Sax. cleoꝑan; Dut *kleven*; preter. I clove, I clave, I cleft; part. pass. cloven or cleft; Sax. cleoꝑan; Dutch, *kloven*. No senses can be more opposite than of these verbs. The neuter signifies to adhere; to stick; to hold to; to unite aptly; to fit; to be concomitant; to be united with; to unite in concord and interest. The other is applied to dividing with violence; splitting forcibly into pieces. It is also used for the act of naturally dividing; parting naturally. It is used in the neuter sense, and signifies to part asunder and to suffer division. The cleaver is the instrument used for cleaving; a butchers' utensil for cutting animals into joints. There is a plant so called from its adhering quality. Aperine or goose-grass. Cleft, the noun, is the chasm made by cleaving, or separating.

And every beast that parteth the hoof, and cleaveth the *cleft* into two claws. *Deuteronomy.*

He stroke so hugely with borrowed blade,
That it empiest the pagan's burganet;
And, *cleaving* the hard steele, did deep invade
Into his head, and cruel passage made
Quite through his brayne. *Spenser.*

Full of fiers fury and indignant hate
To him he turned and with vigour fell,
Smote him so rudely on the pannikell,
That to the chin he *clefte* his head in twaine. *Id.*

We cannot imagine, that, in breeding or begetting faith, his grace doth *cleave* to the one, and forsake the other. *Hooker.*

The apostles did conform the Christians according to the pattern of the Jews, and made them *cleave* the better. *Hooker.*

New honours come upon him
Like our strange garments, *cleave* not to the mould,
But with the aid of use. *Shakspeare.*

Wars 'twixt you twain, would be
As if the world should *cleave*, and that slain men
Should solder up the rift *Id.*

If you shall *cleave* to my consent when 'tis,
It shall make honour for you. *Id.*

The clarifying of liquors by adhesion, is effected when some *cleaving* body is mixed with the liquors, whereby the grosser part sticks to that *cleaving* body. *Bacon's Natural History.*

Water, in small quantity, *cleaveth* to anything that is solid. *Id.*

Fat with incense strewed
On the *cleft* wood. *Milton.*

And at their passing *cleave* the Assyrian flood. *Id.*

never did on *cleft* Parnassus dream,
Nor taste the sacred Heliconian stream. *Dryden.*

The blessed minister his wings displayed,
And, like a shooting-star, he *cleft* the night. *Id.*

Raised on her dusky wings she *cleaves* the sky. *Id.*

The fountains of it are said to have been *cloven*, or burst open. *Burnet's Theory of the Earth.*

It *cleaves* with a glossy polite substance, not plain, but with some little unevenness. *Newton's Optics.*

Though armed with all thy *cleavers*, knives,
And axes made to hew down lives. *Hudibras.*

The cascades seem to break through the *clefts* and cracks of rocks. *Addison's Guardian.*

The extremity of this cape has a long *cleft* in it, which was enlarged and cut into shape by Agrippa, who made this the great port of the Roman fleet. *Id. on Italy.*

Now, when the height of heaven bright 'Phœbus gains,'
And level rays *cleave* wide the thirsty plains,
When heifers seek the shade and cooling lake,
And in the middle path-way basks the snake,
O lead me, guard me from the sultry hours!
Hide me, ye forests, in your closest bowers. *Gay.*

You gentlemen keep a parcel of roaring bullies about me day and night, with huzzas and hunting horns, and ringing the changes on butchers' *cleavers*. *Arbuthnot.*

Now where the swift Rhone *cleaves* his way between
Heights, which appear as lovers who have parted
In hate, who mining depths so intervene,
That they can meet no more though broken hearted. *Byron.*

CLEAVER (William), D. D. late bishop of St. Asaph, was born in 1742, at Twyford, Bucks, where his father, also a clergyman, kept a respectable seminary. He entered the university of Oxford, on a demyship at Magdalen College, but soon after removed, upon a fellowship, to Brazennose, and was appointed tutor to Richard, marquis of Buckingham, through whose interest he was presented, in 1784, with a prebendal stall at Westminster. The following year he was chosen principal of Brazennose College; and raised to the bench, in 1787, as bishop of Chester. In 1800 he was translated to the see of Bangor; and six years after to that of Saint Asaph. His theological works consist of Observations on Herbert Marsh's Dissertation on the Gospels of Matthew, Mark, and Luke; Directions to the Clergy on the Choice of Books; and some volumes of occasional sermons. He also edited the Oxford Homer, published under the auspices of the Grenville family. He died much respected in 1815.

CLECHE, in heraldry, a kind of cross, charged with another cross of the same figure, but of the color of the field.

CLEDER, a town of France, in the department of Finisterre, and chief place of a canton, in the district of Lesneven, four miles and a quarter west of St. Pol de Leon.

CLEDGE, among miners, denotes the upper stratum of Fullers' earth.

CLEDONISMUS, or CLEDONISM, a kind of divination in use among the ancients. The word is formed from κληδὼν, which signifies two things; a report and a bird. In the first sense cledonism denotes a kind of divination drawn from words occasionally uttered. In the second sense it is a divination drawn from birds; the same with ornithomantia.

CLEES, *n. s.* The two parts of the foot of beasts which are cloven-footed. It is a country word, and probably corrupted from *claws*.

CLEF, *n. s.* from Fr. *clef*, key. In music a mark at the beginning of the lines of a song, which shews the tone or key in which the piece is to begin.

CLEF, in music, a mark at the beginning of the lines of a piece, which expresses the fundamental sound in the diatonic scale, which requires a determined succession of tones and semitones, whether major or minor, peculiar to the note whence we set out and resulting from its position in the scale. Hence, as it opens a way to this succession, and discovers it, the technical term key is used with great propriety. But clefs rather point out the position of different musical parts in the general system, and the relations which they bear to one another. A clef, says Rousseau, is a character in music placed at the beginning of a stave to determine the degree of elevation occupied by that stave in the general claviary or system, and to point out the names of all the notes which it contains in the line of that clef. Anciently the letters by which the notes of the gamut were signified were called clefs. Thus the letter A was the clef of the note la, C the clef of ut, E the clef of mi, &c. In proportion as the system was extended the embarrassment and superfluity of this multitude of clefs were felt. Gui d' Arezzo, who had invented them, marked a letter or clef at the beginning of each line in the stave; for as yet he had placed no notes in the spaces. In process of time they marked only one of the seven clefs at the beginning of one of the lines only; and this was sufficient to fix the position of all the rest, according to their natural order: at last, of these seven lines or clefs they selected four, which were called claves signatæ, or discriminating clefs, because they satisfied themselves with marking one of them upon one of the lines, from which the powers of all the others might be recognised. Presently afterwards they even retrenched one of these, viz. the gamma, of which they made use to mark the sol below, that is to say, the hypoproslambanomene added to the system of the Greeks. Kircher asserts, that if we understood the characters in which ancient music was written, and examined minutely the forms of our clefs, we should find that each of them represents the letter, a little altered in its form, by which the note was originally named. Thus the clef of sol was originally a G, the clef of ut a C, and the clef of fa an F.

We have then three clefs, one a fifth above the other; the clef of F, or fa, which is the lowest; the clef of ut, or C, which is a fifth above the former; and the clef of sol, or G, which is the fifth above that of ut. By an ancient practice, the clef is always placed upon a line and never in a space. The clef of fa is marked in three different ways: one in music which is printed, another in music which is written or engraven, and a third in the full harmony of the chorus. By adding four lines above the clef of sol, and three lines beneath the clef of fa, which gives both above and below the greatest extent of permanent or established lines, it appears that the whole scale of notes which can be placed upon the gradations relative to these clefs amounts to twenty-four; that is to say, three octaves and a fourth from the F, or fa, which is found beneath the first line, to the si or B, which is found above the last, and all this together forms what we call the general claviary; whence we may judge that this compass has, for a long time, constituted the extent of the system. But as at present it is continually acquiring new degrees, as well above as below, the degrees are marked by leger lines, which are added above or below as occasion requires.

Whatever may be the character and genius of any voice or instrument, if its extent above or below does not surpass that of the general claviary, in this number may be found a station and a clef suitable to it; and there are, in reality, clefs determined for all the parts in music. If the extent of a part is very considerable, so that the number of lines necessary to be added above or below may become inconvenient, the clef is then changed in the course of the music. It may be plainly perceived by the figure what clef is necessary to choose for raising or depressing any part, under whatever clef it may be actually placed. It will likewise appear that, in order to adjust one clef to another, both must be compared by the general claviary, by means of which we may determine what every note under one of the clefs is with respect to the other. It is by this exercise repeated that we acquire the habit of reading with ease all the parts in any clef whatever.

CLEFT, *n. s.* in farriery, a crack in a horse's foot.

> His horse it is the herald's weft;
> No, 'tis a mare' and hath a *cleft*. *Ben Jonson.*

Clefts appear on the bought of the pasterns, and are caused by a sharp and malignant humour, which frets the skin; and it is accompanied with pain, and a noisome stench. *Farrier's Dictionary.*

To CLEFTGRAFT, *v. a.* cleft and graft. To engraft by cleaving the stock of a tree, and inserting a branch.

Filberts may be *cleftgrafted* on the common nut. *Mortimer.*

CLEGHORN (George), a celebrated physician of the last century, was born in 1716, near Edinburgh, where he received his education. He became a pupil of Dr. Alex. Munro, in 1731, and contracted an intimacy with Fothergill and Cumming, in conjunction with whom, and other medical students, those meetings for mutual improvement were held which gave rise to the Royal Medical Society of that city. In 1736, he went to Minorca, as surgeon to the 22nd regiment, and resided in that island thirteen years. On his return he published a Treatise on the Diseases of Minorca, a work which has always been considered as an excellent model of medical topography. In the composition of it he is said to have been assisted by his friend Dr. Fothergill. In 1751 Dr. Cleghorn settled at Dublin, and gave lectures on anatomy. In 1784 he was elected an honorary member of the Irish College of Physicians, and anatomical professor. He was one of the earliest members of the Royal Irish Academy, and died in December, 1789.

CLELAND (John), an English writer of novels, was the son of colonel Cleland, the Will Honeycomb of the Spectator. He was educated at Westminster school, and went early in life as consul to Smyrna; he afterwards sailed to the East Indies, but returned to Europe embarrassed, and wrote an infamous novel for which he only obtained twenty guineas (though the sale is supposed to have produced some thousands), and threats of a public prosecution. The late earl of Granville, in order to draw him from such pursuits, nobly offered him a hundred a year; after which he wrote The Memoirs of a Coxcomb; The Man of Honor; and an etymological work, entitled, The Way to Things by Words, and to Words by Things, 8vo. He died in 1789, aged eighty-two.

CLEMA, in antiquity, a twig of the vine, which served as a badge of the centurion's office.

CLEMATIS, virgin's bower, in botany, a genus of the polygynia order, and polyandria class; natural order twenty-sixth, multisiliquæ: CAL. none: the petals are four, rarely five; the seeds have a train; species twelve, all of which, except two, are shrubby climbing plants, very hardy, and adorned with quadrupetalous flowers of red, blue, purple, white, and greenish colors. They are very easily propagated by layers or cuttings. One of the species, viz. C. vitis alba, is very acrid to the taste, and without any smell. It is frequently used as a caustic, and for cleansing old ulcers. The root is said to be purgative. The leaves of all the species bruised and applied to the skin, burn it into carbuncles as in the plague; and if applied to the nostrils in a sultry day immediately after being cropped, will cause the same uneasy sensation as a flame applied to that part would occasion. Hence the title of flammula, or little flame, by which this genus of plants was formerly distinguished.

CLEMENCET (Dr. Charles), a catholic divine, was born in 1722, at Painblanc, in the diocese of Autun. At the age of eighteen he entered the congregation of St. Maur, and, after teaching rhetoric with great credit, was appointed to the monastery of the Blanc-Manteaux, Paris, where he died in 1778. His works are, 1. L'Art de Vérifier les Dates, the historical part of which

the foundation and substance of uni-
history from Jesus Christ to the present

EMENCY, *n. s.* } Fr. *clemence*; Lat. **E′MENT**, *adj.* } *clementia*. Mercy; re- on of severity; willingness to spare; ten- ess in punishing; mildness; softness; mild; le; merciful; kind; tender; compassionate.

You are more *clement* than vile men,
ho of their broken debtors take a third,
etting them thrive again on the abatement.
Shakspeare.

Then in the *clemency* of upward air
e'll scour our spots, and the dire thunder scar.
Dryden.

I have stated the true notion of *clemency*, mercy, compassion, good-nature, humanity, or whatever else it may be called, so far as is consistent with wisdom.
Addison.

Then, Envy, then is thy triumphant hour,
When mourns Benevolence his baffled scheme,
When Insult mocks the *clemency* of power,
And loud Dissension's livid fire-brands gleam.
Beattie.

Clemency, in antiquity, was deified at Athens, and had an altar erected to her by the kindred of Hercules. A temple was also dedicated to her by the Roman senate, after the death of Julius Cæsar, on some of whose denarii this goddess appears. The poets describe her as the guardian of the world, and she is exhibited, holding a branch of laurel or olive, and a spear, to show that gentleness and pity ought principally to distinguish victorious warriors. The name of asylum was given to the temples that were erected to this goddess. 'The distinguishing character of Clemency,' says the learned Spence, 'both in her statues and in the poets, is the mildness of her countenance; she has an olive branch in her hand, as a mark of her peaceful and gentle temper.'

When the Athenian council of thirty, established by Lysander, after having committed most execrable cruelties, had been overthrown by Thrasybulus, he proposed, after the recall of the exiles, a celebrated amnesty, by which the citizens engaged on oath that all past transactions should be forgotten. The government was now re-established upon its ancient foundation, the laws restored to their pristine vigor, and magistrates elected with the usual forms. This, says Rollin (Anc. Hist. vol. iii. p. 309), is one of the finest events in ancient history, worthy of the Athenian lenity and benevolence, and has served as a model to successive ages in good government. Never had tyranny been more cruel and bloody than that from which the Athenians had been rescued. Every house was in mourning; every family bewailed the loss of some relation. It had been a series of public robbery and rapine, in which licence and impunity had authorised all manner of crimes. The people seemed to have a right to demand the blood of all accomplices in such notorious malversations, and even the interest of the state to authorise such a claim, that by exemplary severities such enormous crimes might be prevented for the future. But Thrasybulus rising above those sentiments, from the superiority of his more extensive genius, and the views of a more discerning and profound policy, foresaw, that by giving way to the punishment of the guilty, eternal seeds of discord and enmity would remain, to weaken the republic by domestic divisions, which it was necessary to unite against the common enemy, and occasion a loss to the state of a great number of citizens, who might render it important services from the view itself of making amends for past misbehaviour. Such a conduct, continues Rollin, after great troubles in a state, has always seemed with the ablest politicians, the most certain and ready means to restore the public peace and tranquillity.

Montesquieu observes (Spirit of Laws, vol. i. p. 134), that clemency is the peculiar characteristic of monarchs. In monarchies, great men are governed by honor, which frequently requires what the law forbids, and they are so much punished by disgrace, by the loss (though often imaginary), of their fortune, credit, acquaintances, and pleasures, that rigor in respect to them is needless. It can lead only to divest the subjects of the affection they have for the person of their prince, and of the respect they ought to have for public posts and employments. So many are the advantages which monarchs gain by clemency, such love, such glory attend it, that it is generally a point of happiness with them to have an opportunity of exercising it.

CLEMANGIS, or **De Claminges** (Nicholas), a distinguished divine of the university of Paris, of which he was rector in 1393. His works so decidedly reprove the corruptions of the church of Rome, that they were republished by Lydius, a protestant minister in Holland, in 1613. One of them is entitled, Of the corrupt State of the Church. His style is very much superior to the general taste of the age. He died about 1440.

CLEMENS Alexandrinus, an eminent father of the church, who flourished at the end of the second, and beginning of the third centuries. He was the scholar of Pantænus, and the instructor of Origen. The best edition of his works is that in 2 vols. folio, published in 1715, by archbishop Potter.

Clemens Romanus, or **St. Clement**, was the fourth bishop of Rome, we are told, where also he is said to have been born; and to have been a fellow laborer with the apostles Peter and Paul. We have nothing remaining of his works clearly genuine, excepting one epistle, a very valuable relic of antiquity.

Its principal design is to compose those differences which appear to have subsisted in the church of Corinth, about their spiritual guides. The style is clear and simple. It is called by the ancients an 'excellent' and 'useful,' a 'great' and 'admirable, epistle.' It is not indeed entire; and, as there is but one authentic MS. of it remaining, we cannot expect to obtain its sense so correctly as if we had the opportunity of collating several copies. It appears, from expressions that occur in it, to have been written after, or at the conclusion of, some persecution, either that of Nero about 64, or that of Domitian in 94, or 95. Several passages seem to intimate, that it was written after the latter and not so soon as that of Nero. Irenæus says, that in the time of Clement, when many were alive, who had been taught by the apostles, and when there was no small dissension among the brethren of Corinth, the church at Rome sent a most excellent letter to the Corinthians, persuading them to peace among themselves, &c. Eusebius also bears testimony to the excellence of this epistle, and to the dissention at Corinth which occasioned it; and he adds, that this epistle has been formerly, and is still publicly read in many churches. St. Jerome also says, that Clement wrote a very useful epistle in the name of the church of Rome to the church of Corinth, which in some places is read publicly. Upon the whole we may conclude with Dr. Lardner, that this epistle was written at the latter end of the reign of Domitian, in the year 95, or rather 96. In this epistle there is but one book of the New Testament expressly named, which is the first epistle of St. Paul to the Corinthians, and which, it is said, was written by the apostle Paul. But it contains frequent references and allusions to the Scriptures both of the Old and New Testament. Words of our blessed Lord, found in the gospels of Matthew, Mark, and Luke, are recommended with a high degree of respect, though without the names of the Evangelists. There are also allusions to the Acts of the Apostles, the epistle of Paul to the Romans, both the epistles to the Corinthians, the epistles to the Galatians, Ephesians, Philippians, Colossians, the first to the Thessalonians, first and second to Timothy, the epistle to Titus, the epistle to the Hebrews, the epistle of James, and the first and second of Peter; but all without any name, or mark of citation. Mill observes, that it appears from this epistle, that Clement had in his hands not only our first three gospels, but also the Acts of the Apostles, and the epistle to the Romans, both the epistles to the Corinthians, and the epistle to the Hebrews: and the testimony thus given to the antiquity, genuineness, or authority, of the books of the New Testament, is to be esteemed not only the testimony of Clement, but likewise of the church of Rome in his time. Moreover, it ought to be allowed, that the Corinthians likewise, to whom this epistle was sent, were acquainted with, and highly respected, the books quoted, or alluded to. In this epistle there are not any quotations or references to any of the apocryphal gospels.

A second epistle of Clement, which some have been inclined to own, is expressly rejected by Photius; and Grabe has observed, that Dionysius, bishop of Corinth in the second century, mentions only one epistle of Clement; that Clement of Alexandria and Origen, who have quoted the first, never take any notice of the second; nor yet Irenæus, who has particularly mentioned the first, and could not well have omitted to mention the other also, if he had known it. Grabe concludes, from these circumstances, that this piece was not written before the middle of the third century. The Constitutions and Recognitions, ascribed to Clement, are clearly spurious.

Clement V. (pope), the first who made a public sale of indulgences. He transplanted the holy see to Avignon in France; greatly contributed to the suppression of the knights templars; and was author of a compilation of the decrees of the general councils of Vienna, styled Clementines. He died in 1314.

Clement VII. (pope), whose original name was Julius de Medicis, is memorable for his refusing to divorce Catharine of Arragon from Henry VIII; and for the bull he published upon the king's marriage with Anne Boleyn; which, according to the Romish authors, lost him England. He died in 1534.

Clement XIV. (pope), whose family name was John Vincent Antony Ganganelli, was the son of a physician of St. Archangelo near Rimini. He was born in 1705, and educated at Rimini, whence he proceeded at the age of eighteen to enter the order of Minor Conventual Franciscans at Urbino. At thirty-five he was appointed theological professor in the Roman college of St. Buonaventure. His learning, liberality, and general fame, soon reached the ears of Benedict XIV., who made him counsellor of the holy office. In 1759 he was created cardinal by Clement XIII., on the death of whom, chiefly through the influence of the house of Bourbon, Ganganelli was chosen his successor. His election, which took place in May 1764, was very popular at Rome; and he immediately began to conciliate, though with dignity, the offended sovereigns. The great event of his pontificate, was the suppression of the Jesuits, for which he signed a brief, July 21st, 1773. He survived this event only about two years, but it was the means of his reconciliation with the courts formerly hostile to him. His final illness was attended with severe pains in the bowels, which reduced him to a skeleton, and the enemies of the suppressed order did not fail to connect the circumstances with the known jesuitical doctrines on the subject of assassination, and circulated a suspicion that he had been poisoned. This seems never, however, to have been substantiated, and Clement did not suspect it. He died on September 22nd, 1775. This pontiff was distinguished for simplicity of manners, disinterestedness and modesty. His letters are known to be fabrications.

Clement (Francis), an ingenious French writer of the congregation of St. Maur, was born at Beze, in Burgundy, in 1714. His superiors called him to Paris, and employed him in continuing the Literary History of France, which Rivet had begun. He wrote the seventh and twelfth volumes of that work, and was afterwards engaged to continue the collection of the French historians, begun by Bouquet; of which he compiled the twelfth and thirteenth volumes. But the most important service he rendered to the literary world, was the improvement of the excellent work L'Art de Verifier les Dates, designed by Dantine, and afterwards published by Durand and Clemencet, in one large volume 4to. After thirteen years labor, he increased it to no less than three large volumes folio, which were published between 1783 and 1792. He was engaged on a similar work, under the title of L'Art de Verifier les Dates avant J. C. about the time of his death in 1793.

CLEMENTINE, a term used among the Augustines, who apply it to one, who, after having been nine years a superior, ceases to be so, and becomes a private monk, under the command of a superior: pope Clement having prohibited any superior among the Augustines from continuing above nine years in his office.

Clementines, in the canon law, are the constitutions of pope Clement V. and the canons of the council of Vienne.

CLENARD (Nicholas), a celebrated grammarian of the sixteenth century, born at Diest. After having taught languages at Louvain, he travelled into France, Spain, Portugal, and Africa; and wrote in Latin, 1. Letters relating to his Travels, which are very curious and scarce. 2. A Greek Grammar. He died at Grenoble, in 1542.

CLENCH. See Clinch.

CLEOBIS and Biton, in fabulous history, two youths, sons of Cydippe the priestess of Juno at Argos. When oxen could not be procured to draw their mother's chariot to the temple of Juno, they put themselves under the yoke, and drew it forty-five stadia to the temple, amidst the acclamations of the multitude, who congratulated the mother on account of the piety of her sons. Cydippe entreated the goddess to reward the piety of her sons with the best gift that could be granted to a mortal. They went to rest and awoke no more; and by this the goddess indicated that death is the most happy event that can happen to a man. The Argives raised them statues at Delphi.

CLEOBULUS, one of the seven sages of Greece, was the son of Evagoras of Lindus, a city of Rhodes, and famous for his personal attractions. He wrote poetry and moral maxims; and died in the seventieth year of his age, 564 B. C. or according to some writers, B. C. 584. Cleobulina, his daughter, is said to have composed enigmas, which were sent into Egypt, where they excited great admiration. Some of them have been preserved; and to her has been attributed the Grecian riddle respecting the months of the year, mentioned in our article Chronology.

CLEOMBROTUS I. king of Sparta, was the son of Anaxandridas. He was deterred from building a wall across the isthmus of Corinth against the approach of the Persians, by an eclipse of the sun, and, dying in the seventy-fifth Olympiad, was succeeded by Plistarchus, the son of Leonidas, a minor.

Cleombrotus II. the son of Pausanias, king of Sparta, after his brother Agesipolis I. He made war against the Bœotians; and, lest he should be suspected of treacherous communications with Epaminondas, gave battle at Leuctra, in a very disadvantageous place. He was killed in the engagement, and his army destroyed, in the year of Rome 382.

Cleombrotus III. a son-in-law of Leonidas, king of Sparta, who for a while usurped the kingdom after the expulsion of his father-in-law. When Leonidas was recalled, Cleombrotus was banished, and his wife Chelonis, who had accompanied her father, now accompanied her husband in his exile.

CLEOME, in botany, a genus of the siliquosa order, and tetradynamia class of plants; natural order twenty-fifth, putamineæ. Nectariferous glandules three, one at each sinus of the cal. except the lowest; the pet. all rising upwards; the siliqua unilocular and bivalved. Species twenty-three, all natives of warm climates. They are herbaceous plants rising from one to two feet high; and are adorned with flowers of various colors, as red, yellow, flesh color, &c. They are propagated by seeds, and require no other care than what is common to other exotics which are natives of warm countries.

CLEOMEDES, an ancient Greek philosopher, whom Dr. Priestley supposes to have flourished about A. D. 427. He wrote a considerable treatise on astronomy and cosmology, still extant, It is divided into two books, and discourses on the dimensions of the earth, which is supposed to be the centre of the universe; of the magnitudes and distances of the heavenly bodies; of the eclipses of the moon, &c.

CLEOMENES I. king of Sparta, subdued the Argives and freed Athens from the tyranny of the Pisistratidæ. By bribing the oracle he pronounced Demaratus, his colleague on the throne, illegitimate, because he refused to punish the people of Ægida, who had deserted the Greeks. He killed himself in a fit of madness.

Cleomenes II. succeeded his brother Agesipolis II. He reigned thirty-four years in the greatest tranquillity, and was father to Acrotatus and Cleonymus. He was succeeded by Areus I. son of Acrotatus.

Cleomenes III. succeeded his father Leonidas. He was of an enterprising spirit, and resolved to restore the ancient discipline of Lycurgus in its full force. He killed the Ephori, poisoned his royal colleague Eurydamidas, and made his own brother Euclidas king, contrary to the express laws of the state, which ordained one of each family to sit on the throne. He also made war against the Achæans, and attempted to destroy the celebrated Achæan league. Aratus, the general of the Achæans, who supposed himself inferior to his enemy, called Antigonus to his assistance; and Cleomenes, when he had fought the unfortunate battle of Sellasia, retired into Egypt to the court of Ptolemy Euergetes. Ptolemy received him and his family with great cordiality; but his successor, weak, and suspicious, soon expressed his jealousy of this noble stranger, and imprisoned him. Cleomenes killed himself, and his body was exposed on a cross in the 140th Olympiad.

CLEONÆ, in ancient geography, a town of Argolis, above Mycenæ, on the road which leads from Argos to Corinth; standing on an eminence, on every side occupied by houses.

CLEONÆUS, an epithet of Hercules, so called from his having killed the huge Nemean lion, near Cleonæ, which was fabled to have been translated to the stars, and turned into the constellation of the lion.

CLEONIA, in botany, a genus of plants of the didynamia class, and gymnospermia order. Filaments bifid, one point having the anthers on its tip; stigma four-cleft. Species, one only.

CLEOPATRA III. a celebrated queen of Egypt, and the last of its native sovereigns, was the daughter of Ptolemy Auletes, who left the crown by will to this princess and her brother Ptolemy, on condition that they should marry and reign jointly. As they were both young, he further directed that they should be educated under the patronage of the Roman senate. Cleopatra seems to have been first acknowledged queen in the second year of the 182nd Olympiad, or the 703rd A.U.C. and B.C. 51; but the early history both of her and her brother Ptolemy's affairs is obscure. He seems to have been mainly under the guidance of the Egyptian general Achillas and the eunuch Pothinus, who, ambitious to enlarge their power, intrigued against Cleopatra, and compelled her to retire into Syria. Here she raised a considerable army which she led into Egypt to assert her rights. Ptolemy having also taken the field, both armies encamped between Pelusium and Mount Casius; but seemed mutually unwilling to hazard an engagement. Pompey at this juncture, who had been appointed one of the guardians of the young king, sought, after his defeat at Pharsalia, an asylum in Egypt; but, on his reaching Pelusium was basely murdered: and Julius Cæsar shortly after arrived at Alexandria in pursuit of him. The funeral of Pompey detaining him at first, and contrary winds afterwards, Cæsar applied for the payment of the money due to him from Auletes, and entered warmly into the difference subsisting between Ptolemy and his sister. His haughty behaviour irritated the Egyptians; but the cause of the prince and princess was finally referred to his tribunal, and advocates were appointed to state their respective claims.

Cleopatra now resolved on that disgraceful bartering of her person for her momentary interests, which resulted so quickly in her own ruin and that of her country. Asking leave to appear before Cæsar, or, as Plutarch says, having been invited to plead her own cause in his presence, she caused herself to be secretly conveyed to his apartment in a mattrass; being carried thither through the streets of Alexandria on the back of Apollodorus. Cæsar, it is said, applauded the stratagem, and when Cleopatra presented herself, was so charmed with her person that he detained her all night. Next morning he sent for Ptolemy, and pressed him to comply with all his sister's wishes. The young prince, on finding that Cæsar was become the advocate of Cleopatra on terms so disgraceful to her family, was roused to indignation, and running half frantic through the streets of Alexandria, excited an insurrection of the populace. The Roman chief, however, contrived to appease the tumult, by showing himself from a balcony to the multitude, and promising to do whatever should be suggested for the best by their leaders. Next day he convened a general assembly of the people, and decreed between the parties, as guardian and arbitrator, that Ptolemy and Cleopatra should reign jointly in Egypt, according to their father's will. This decree at first gave satisfaction; but Pothinus now suggested to the people, that it was part of the Roman plan to place Cleopatra alone on the throne; and measures were again adopted for expelling the Roman army from the capital. But Cæsar secured the person of Ptolemy, put Pothinus to death, and gained several successive victories over this unhappy people; on the last occasion only, 20,000 Egyptians were slain, 12,000 taken prisoners, and Ptolemy drowned in the Nile, in his attempt to escape. Cæsar afterwards returning to Alexandria without opposition, bestowed the crown on Cleopatra, marrying her to her younger brother Ptolemy, not more than eleven years of age. The revolt of Pharnaces, king of the Cimmerian Bosphorus, now finally called him away: and Cleopatra reigned undisturbed, except by her own fears of the future interference of her brother. At fifteen years of age, according to the Egyptian laws, he was to share the royal authority with her: inured to vice and blood, she caused him therefore to be poisoned, in the fourth year of his reign, and from that time became the sole sovereign of Egypt. On the death of Cæsar, she declared herself in favor of the triumvirate, and sailed with a numerous fleet to join Antony and Octavianus; but lost a number of her ships in a storm.

We now arrive at the crisis of her fate: Antony having received information, after the battle of Philippi, that Cleopatra had sent succours to Cassius, required her to appear before him at Tarsus. The Egyptian queen had not forgotten her first conquest: providing herself with large sums of money, magnificent presents, and a profusion of the most splendid royal attire, she embarked in a galley, beautifully gilt and ornamented, attended by her whole fleet: and crossing the sea of Pamphylia, sailed up the Cydnus, towards the Roman head quarters. Here she mounted sails of purple silk, and her oars were plated with silver. The queen herself appeared under a canopy of cloth of gold, raised on the deck, in the attitude and attire of Venus rising out of the sea. The neighbouring hills, as she sailed up the river, echoed with the enchanting melody of a skilful military band, to which the oars kept time; while the most fragrant perfumes burning on the deck, diffused their odors on every side to a considerable distance. Shakspeare is quite historical here—

> The barge she sat in, like a burnished throne,
> Burned on the water: the poop was beaten gold;
> Purple the sails, and so perfumed that
> The winds were love-sick with them: the oars were
> silver;
> Which to the tune of flutes kept stroke, and made
> The water, which they beat, to follow faster,
> As amorous of their strokes. For her own person,
> It beggared all description; she did lie,
> In her pavilion (cloth of gold, of tissue),
> O'er-picturing that Venus, where we see
> The fancy out work nature: on each side her
> Stood pretty dimpled boys, like smiling Cupids,
> With diverse-colored fans, whose wind did seem
> To glow the delicate cheeks which they did cool.
> And what they undid, did!

Antony who, as she approached the tower of Tarsus, was distributing justice in the forum, soon found himself deserted by the people. On her landing, he invited her to supper; but the queen, declining the invitation, requested a visit from him in her tent. The triumvir at once complied, and was entertained, it is said, with a magnificence which words cannot describe. His

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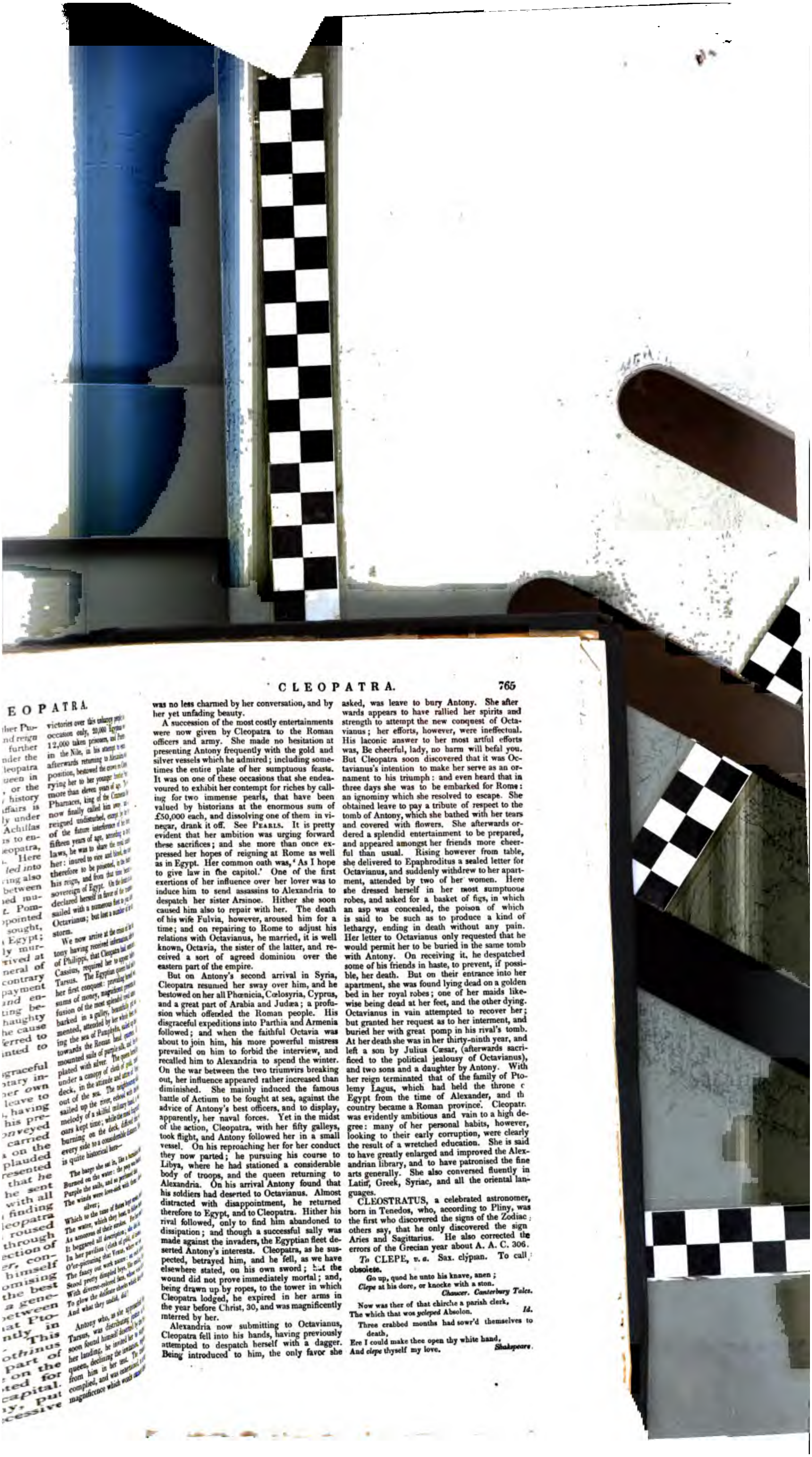

was no less charmed by her conversation, and by her yet unfading beauty.

A succession of the most costly entertainments were now given by Cleopatra to the Roman officers and army. She made no hesitation at presenting Antony frequently with the gold and silver vessels which he admired; including sometimes the entire plate of her sumptuous feasts. It was on one of these occasions that she endeavoured to exhibit her contempt for riches by calling for two immense pearls, that have been valued by historians at the enormous sum of £50,000 each, and dissolving one of them in vinegar, drank it off. See PEARLS. It is pretty evident that her ambition was urging forward these sacrifices; and she more than once expressed her hopes of reigning at Rome as well as in Egypt. Her common oath was, 'As I hope to give law in the capitol.' One of the first exertions of her influence over her lover was to induce him to send assassins to Alexandria to despatch her sister Arsinoe. Hither she soon caused him also to repair with her. The death of his wife Fulvia, however, aroused him for a time; and on repairing to Rome to adjust his relations with Octavianus, he married, it is well known, Octavia, the sister of the latter, and received a sort of agreed dominion over the eastern part of the empire.

But on Antony's second arrival in Syria, Cleopatra resumed her sway over him, and he bestowed on her all Phœnicia, Cœlosyria, Cyprus, and a great part of Arabia and Judæa; a profusion which offended the Roman people. His disgraceful expeditions into Parthia and Armenia followed; and when the faithful Octavia was about to join him, his more powerful mistress prevailed on him to forbid the interview, and recalled him to Alexandria to spend the winter. On the war between the two triumvirs breaking out, her influence appeared rather increased than diminished. She mainly induced the famous battle of Actium to be fought at sea, against the advice of Antony's best officers, and to display, apparently, her naval forces. Yet in the midst of the action, Cleopatra, with her fifty galleys, took flight, and Antony followed her in a small vessel. On his reproaching her for her conduct they now parted; he pursuing his course to Libya, where he had stationed a considerable body of troops, and the queen returning to Alexandria. On his arrival Antony found that his soldiers had deserted to Octavianus. Almost distracted with disappointment, he returned therefore to Egypt, and to Cleopatra. Hither his rival followed, only to find him abandoned to dissipation; and though a successful sally was made against the invaders, the Egyptian fleet deserted Antony's interests. Cleopatra, as he suspected, betrayed him, and he fell, as we have elsewhere stated, on his own sword; but the wound did not prove immediately mortal; and, being drawn up by ropes, to the tower in which Cleopatra lodged, he expired in her arms in the year before Christ, 30, and was magnificently interred by her.

Alexandria now submitting to Octavianus, Cleopatra fell into his hands, having previously attempted to despatch herself with a dagger. Being introduced to him, the only favor she asked, was leave to bury Antony. She after wards appears to have rallied her spirits and strength to attempt the new conquest of Octavianus; her efforts, however, were ineffectual. His laconic answer to her most artful efforts was, Be cheerful, lady, no harm will befal you. But Cleopatra soon discovered that it was Octavianus's intention to make her serve as an ornament to his triumph: and even heard that in three days she was to be embarked for Rome: an ignominy which she resolved to escape. She obtained leave to pay a tribute of respect to the tomb of Antony, which she bathed with her tears and covered with flowers. She afterwards ordered a splendid entertainment to be prepared, and appeared amongst her friends more cheerful than usual. Rising however from table, she delivered to Epaphroditus a sealed letter for Octavianus, and suddenly withdrew to her apartment, attended by two of her women. Here she dressed herself in her most sumptuous robes, and asked for a basket of figs, in which an asp was concealed, the poison of which is said to be such as to produce a kind of lethargy, ending in death without any pain. Her letter to Octavianus only requested that he would permit her to be buried in the same tomb with Antony. On receiving it, he despatched some of his friends in haste, to prevent, if possible, her death. But on their entrance into her apartment, she was found lying dead on a golden bed in her royal robes; one of her maids likewise being dead at her feet, and the other dying. Octavianus in vain attempted to recover her; but granted her request as to her interment, and buried her with great pomp in his rival's tomb. At her death she was in her thirty-ninth year, and left a son by Julius Cæsar, (afterwards sacrificed to the political jealousy of Octavianus), and two sons and a daughter by Antony. With her reign terminated that of the family of Ptolemy Lagus, which had held the throne c Egypt from the time of Alexander, and th country became a Roman province. Cleopatr. was evidently ambitious and vain to a high degree: many of her personal habits, however, looking to their early corruption, were clearly the result of a wretched education. She is said to have greatly enlarged and improved the Alexandrian library, and to have patronised the fine arts generally. She also conversed fluently in Latin, Greek, Syriac, and all the oriental languages.

CLEOSTRATUS, a celebrated astronomer, born in Tenedos, who, according to Pliny, was the first who discovered the signs of the Zodiac; others say, that he only discovered the sign Aries and Sagittarius. He also corrected the errors of the Grecian year about A. A. C. 306.

To CLEPE, *v. a.* Sax. clypian. To call: obsolete.

> Go up, quod he unto his knave, anen;
> *Clepe* at his dore, or knocke with a ston.
> *Chaucer. Canterbury Tales.*
>
> Now was ther of that chirche a parish clerk,
> The which that was *ycleped* Absolon. *Id.*
>
> Three crabbed months had sowr'd themselves to death,
> Ere I could make thee open thy white hand,
> And *clepe* thyself my love. *Shakspeare.*

CLEPSYDRA, from κλεπτω, to conceal, and ὕδωρ, water, an instrument or machine serving to measure time generally, by the fall of a certain quantity of water; though there have likewise been clepsydræ made with mercury. The Egyptians, by this machine, measured the course of the sun; Tycho Brache, in later days, made use of it to measure the motion of the stars, &c. and Dudley employed the same contrivance in all his maritime observations. The clepsydræ are very ancient instruments; they were invented in Egypt under the Ptolemies; being used chiefly in the winter, as the sun-dials in the summer. But they had two great defects; the one, that the water ran out with a greater or less facility, as the air was more or less dense; the other, that it ran more readily at the beginning than towards the conclusion. Ctesibius of Alexandria obviated the latter of these objections, by adding a continual supply of water, and a waste pipe to take off the superfluous quantity.

The clepsydra, in its ancient form of an astronomical instrument, by the help of which the equator was divided into twelve equal parts, before the mathematical division of a circle was understood, was deemed of more value than a sun-dial, on account of its dividing the hours of the night as well as of the day. It was introduced into Greece by Plato, and into Rome by P. Cornelius Scipio Nasica, about 157 years B. C. Pliny says, lib. xxxvii., that Pompey brought a valuable one among his spoils from the eastern nations; and Cæsar is said to have met with an instrument of this kind in Britain, by the help of which he observed that the summer nights of this climate are shorter than they are in Italy. The use which Pompey made of his instrument was to limit the speeches of the Roman orators; which Cicero alludes to when he says, 'latrare ad clepsydram.'

F. Berthoud mentions another ancient clepsydra, Histoire de la Mesure du Temps, tom. i. p. 20, which was called the anaphoric, on the dial-plate of which were projected the circles of the sphere, including the parallels of the sun's altitude, with the semi-diurnal and semi-nocturnal arcs, to which an adjustable bead, as the sun's representative, pointed as an index to show the hours, parallels, &c. as the dial-plate revolved daily by means of wheel-work, which was impelled by water. It does not seem certain at what period this instrument was invented and used; but Berthoud thinks that tables of the sun's motion must have existed previously to its invention, and also a knowledge of projections of the sphere on a plane surface, whence he fixes the date posterior to the time of Hipparchus, who, according to Pliny, died about 125 years B. C. The name anaphoric is evidently derived from anaphora, which was the second house in the heavens, according to the doctrine of astrology, which prevailed about the time here specified.

Athenæus describes under this name a Greek musical instrument, formed like a round altar, not having strings, but pipes, the orifices of which being turned towards water, the agitation of it impelled the air through the pipes, and caused them to give a soft sound; but, as he also informs us that there were a sort of levers projecting beyond the instrument, it is probable that the levers acted as keys by the pressure of the hand causing them to unclose valves placed on or in the pipes; while the water, rising by means of some apparatus in the altar-shaped recipient, forced the air through these valves as they opened, and thus formed a kind of water organ.

Beckmann, in his History of Inventions, vol. i. p. 136, attributes the modern contrivance and introduction of a water-clock to some time between A. D. 1643 and 1663, and gives nearly the same account of one as we meet with in Bion, on Mathematical Instruments, and Ozanam's Recreations, edited by Dr. Hutton. The last writer says, that father Timothy, a Barnabite, gave the machine all the excellence it was capable of, by constructing it so as to make it go a month at one winding up, and to exhibit not only the hours on a dial-plate, but also the sun's place, day of the month, and festivals throughout the year.

How these and similar particulars are indicated, will appear from the following description of a water-clock of the seventeenth century.

In fig 1, of Plate CLEPSYDRA, ABCD is an oblong frame of wood, to the upper part of which two cords, A *a* and B *b*, are fixed at their superior extremities, and at their inferior, to the metallic arbor, *a b*, of the drum, E, which contains distilled water; this water is confined in cells so peculiarly constructed, that they regulate the velocity with which the drum shall descend by the force of gravity from the top to the bottom of the frame, and the ends of the arbor indicate the hours marked on the vertical plane of the frame during the time of descent. An observer, who knows not the nature of the interior cells of the drum, is surprised to see that its weight does not make it run down rapidly, when mounted to the top of the frame by merely folding the strings round the arbor, there being apparently no mechanical impediment to the natural action of gravity. To explain how this phenomenon is produced, we must refer to fig. 2, which is a section of the drum at right angles to its arbor; this circular plane we will suppose to be six inches, which is about the usual size, in diameter, and to represent the inner surface of either of the two ends of the drum, which may be made of any of the unoxidable metals; then, if we conceive seven metallic partitions, F *f*, G *g*, H *h*, I *i*, K *k*, L *l*, and M *m*, to be closely soldered to both ends of the drum, in the sloping direction indicated by the figure, where the black lines are equidistant tangents to the small dotted circle of an inch and half diameter at the points *f*, *g*, *h*, &c.; it is evident, that any small quantity of water introduced into the drum would fall into two, or at most three, of the lower compartments, and would remain there until some external force should alter the position of the drum, supposing in this case the cords tied fast to the arbor; but we have said that they are wound round the circumference of an arbor, that has a sensible diameter, suppose one-eighth of an inch; therefore, they are removed one-sixteenth of an inch, or upwards, if we take their thickness into the ac-

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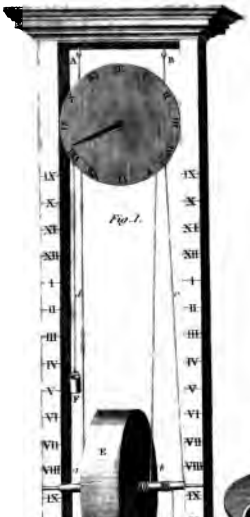
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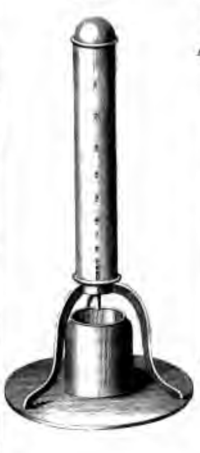
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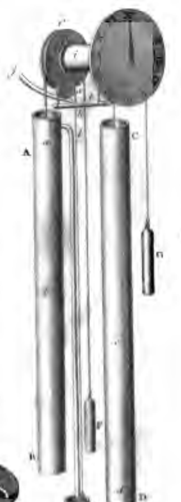
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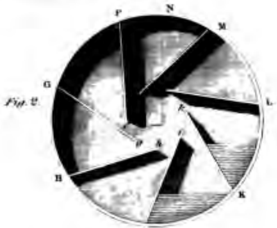
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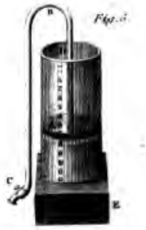
Fig. 5.

London. Published by Thomas Tegg, 73 Cheapside.

J. Storey sculp.

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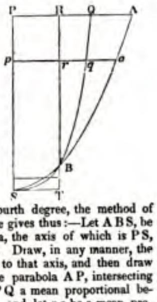
count, from the centre of the drum, which would also be in its centre of gravity, if it were empty, on which account it would, in that case, revolve to the left, in the direction F G H downwards, from the cord being at the remote side of the centre, as represented by N O; but conceive the water to be included now and then, it would be elevated to the right, till its weight became a counterpoise to the gravity of the heavier side of the drum, in which situation all motion would cease, and the drum would remain, suspended, indeed, by the cords, but in a state of equilibrio. Conceive again a small hole perforated in the partition pressed upon by the water near the circumference of the large circle, and also at the points F, G, H, I, K, L, M, and the consequence will be, that the water will first force its way slowly through the perforation at K, from the more elevated to the lower compartment, which effect will diminish its power as a counterpoise, and give such an advantage to the heavy side, F G H, of the drum, considered as empty, as will occasion a small degree of motion towards the left, and consequently carry the water once more towards the right; but now the water passes through the perforation of the next partition also at I, and produces again the same effect as has been described with respect to K, and will continue to do so, at the successive perforations, till all the compartments have been filled and emptied by means of these perforations, in succession, which kind of motion of the drum, contrary to that of the water, it is now not difficult to conceive, will be pretty regular, if all the partitions are perforated exactly alike. The difference of the pressures of the water in cells, nearly full and nearly empty, will occasion some little deviation from regularity; but these will be periodic, and must be allowed for in the hour divisions, which ought to be made by a comparison of the spaces fallen through, with the time indicated by a clock or watch. About nine ounces of distilled water will suffice for a clepsydra of six inches diameter, and two inches depth, and the velocity of the fall may be limited, either by varying the quantity of water, or by hanging a small metallic cup F, to receive weights, by a cord wound in a direction contrary to the cords of suspension, to act as a counterpoise in aid of the water, if the fall be too rapid,—or vice versa. It is necessary that the arbor should fit the central square hole so well as to prevent the escape of water from the drum, otherwise the instrument would continue to gain velocity, till at length it would no longer afford a true indication of time.

Sometimes a cord, *c d*, with a weight, P, is made to pass round a pulley fixed to an arbor at the top of the frame, with a noose passing over the axis near *a*, as is seen in the same figure, which arbor, projecting through a dial-plate or face, turns round and carries a hand to indicate the hours like an ordinary clock; when this construction is preferred, it is an indispensable requisite that the circumference of the pulley's groove be exactly of the same dimensions as the fall of the drum in twelve or twenty-four hours, accordingly as the dial is divided. This clepsydra, it is said, goes faster in summer than in winter, which is owing to the drum being relatively heavier in rarefied than in dense air; we can hardly suppose that any alteration in the fluidity of the water, as formerly imagined, would make any difference. The minute hand, and also the striking part of a common clock, might easily be superadded to this clepsydra.

Another, and more simple, form of the modern clepsydra is derived from that law in hydrostatics by which the efflux of water out of an orifice is influenced under different pressures, or, which is the same thing, at different depths from the surface, the velocity being directly as the square root of the height of the surface from the aperture. If a glass vessel, like that in fig. 3, therefore be taken, out of which all the water will flow in exactly twelve hours, from a small aperture in its lower extremity, the whole height must be divided, or supposed to be divided, into the square of 12 or 144 equal parts, of which parts 11 × 11, or 121 measured from the bottom, or 23 measured from the top, will give the division for the hour 11, 10 × 10 or 100 from the bottom will give the line for 10, 81 for 9, 64 for 8, and so on down to the bottom, as represented in the figure; which scale is in the inverted proportion of that according to which heavy bodies fall in free space by the sole force of gravity. Now if, instead of the vessel itself being divided by hour-lines as above directed, the stem of a floating piece like an hydrometer were to have a similar scale kept in a perpendicular direction, by passing through the central hole of a cap or cover of the vessel, the indication of time would be made on the stem at the surface of the cap, which construction would admit of the vessel being of wood or metal.



Such a figure might be given to the containing vessel as would require the dividing marks to be equidistant, which Dr. Hutton, in his edition of Ozanam's Recreations, has asserted to be a paraboloid, or vessel formed by the circumvolution of a parabola of the fourth degree, the method of describing which, he gives thus:—Let A B S, be a common parabola, the axis of which is P S, and the summit S. Draw, in any manner, the line, R *r* T, parallel to that axis, and then draw any ordinate of the parabola A P, intersecting R T, in R; make P Q a mean proportional between P R and P A, and let *p q* be a mean proportional also between *p r* and *p a*; and so on. The curve passing through all the points Q *q*, &c. will be the one required, which, being made the mould for a vessel to be cast by, will produce an instrument, which, when perforated at the apex, will have the singular property of equalising the scale, so as to correspond to equal times while the water is running out. Mr. Varignon has given a geometrical and general method of determining the scale for a clepsydra, whatever may be the shape and magnitude of the vessel. (See Memoires de l'Academie Royale des Sciences, p. 78, 1699.)

A still more simple water-clock with equidistant hour-lines, in any regular vessel, is constructed by means of the syphon fixed fast in the centre of a broad piece of cork, which is floated in any regular vessel, as the cylindrical one at fig. 5; for, as the power of a syphon to empty any vessel filled with water, depends upon the difference of atmospheric pressures at the surface of the water and at the orifice of the longer leg, it is clear that while the shorter leg sinks with the surface of the water in the vessel during its time of emptying, the relative pressures, depending on the distance from the surface of the water to the orifice of the lower leg, will continue unaltered in any state of the atmosphere; hence eqdal portions of water will be discharged in equal times; and a light cock cemented on the lower orifice would afford a means of adjusting its aperture to the size of any vessel that may be fixed upon; or otherwise a second receiving vessel may be divided into equal spaces for the hours, which would in this case be indicated by the surface of the rising water.

We conclude with extracting the construction and action of a clepsydra, published in the 44th volume of the Philosophical Transactions by the Hon. Charles Hamilton.

A B and C D are two similar oblong vessels attached to a frame of wood, which may easily be conceived to surround figure 4, which shows only the interior mechanism; *a b* and *c d* are two columns of wood so floating in water that their counterpoises, F and G, just keep their superior ends equal with the surface of the water by means of connecting chains passing over the pulley *f*, and another hid by the dial-plate; the former of these pullies, *f*, has a click which pushes the ratchet on the barrel, *i*, when the counterpoise, F, falls, but slips easily over the slopes of the teeth when the said counterpoise rises; the latter pulley has also a similar click acting in like manner, with a second ratchet at the opposite end of the barrel, *i*, which ratchet is also hid in the drawing, so that, whichever of the two counterpoises shall at any time be falling, the barrel, *i*, will move forwards in the same direction; and carry the minute-hand along with it on the dial-plate; the hour-hand goes round by means of dial-work, as in an ordinary clock or watch, where a diminution of velocity is effected by two wheels and two pinions. The action is thus produced by means of five syphons and two balances.

The water enters with an unvaried influx, drawn from a reservoir, by a syphon of small bore, the longer leg of which is seen at J, into the middle of what may be called a horizontal trough, supported like a balance by a fulcrum or axis in such a way, that either end of the balance may be elevated accordingly as the long vessels A B and C D require to be alternately filled; near the top of each of these vessels is inserted a long syphon or tantalus, *l* and *m*, the lower legs of which reach down to two small cylindrical vessels, *n* and *o*, which are poised by another balance at the fulcrum *p*; these cylindrical vessels have, in like manner, each a small syphon, *q* and *r*; lastly, a silken thread tied to the upper end of the cylinder, *n*, is carried up round a small pulley fast to the frame at *s*, and fastened to the end of the trough under it, and similar thread is fastened in like manner to the cylinder *o*, and end of the trough under the small pulley *t*. Now it is easy to conceive, that when the vessel, A B, is filled to nearly the head of the tantalus, *l*, the bore of which is larger than of the feeding syphon J, the water will be discharged into the cylindrical vase *n*, which consequently will preponderate, and by means of the silken cord elevate the end of the trough higher than the horizontal line, and make its opposite end under the small pulley, *t*, to be depressed, which will therefore conduct the water into the other long vessel C D; during this action the counterpoise, F, rises, and its pulley, *f*, produces no effect on the ratchet by reason of the click, *h*, sliding over the sloping sides of its teeth, but the counterpoise, G, falls, and the click of its pulley (not seen) pushes the second ratchet forwards in the direction of the figures of the face I. II. III. &c.

When C D is nearly full, the long syphon, *m*, begins to discharge its water; makes the cylindrical vase, *o*, preponderate, and again elevates by means of its silken string the end of the trough under the small pulley *t*, and depresses the opposite end to fill the vessel, A B, again, during which time the click, *h*, of the pulley, *f*, acts with its ratchet; and thus the alternate increase and decrease of the water in the two vessels are continued without interruption, so long as the feeding syphon continues to supply a sufficient quantity of pure water.

CLERC (George le), count de Buffon. See BUFFON.

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CLERC (George le), count
BUFFON.

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